

*A1. TITLE AND APPROVAL PAGE*

**SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN**  
**for**  
**105 McDonough Boulevard Southeast, Addendum 1.A for the FY 2018 City of Atlanta**  
**Brownfield Assessment Program**

**Conducted Under**  
**EPA Brownfields Cooperative Agreement Recipient (CAR) No. BF 00D59517-0**

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Submittal Date:  
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**EPA Project Officer/ EPA Designated Approving  
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Derek Street 2/4/2019  
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**City of Atlanta Brownfields Program Director:**



Signature  
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Printed Name / Date

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EPA Region 4 SOP SESDPROC-202-R3: Management of Investigation Derived Waste

### *A3. DISTRIBUTION LIST*

The following individuals will receive copies of the approved Site-Specific Generic Quality Assurance Project Plan (SSQAPP) and any subsequent revisions:

- Derek Street, Brownfields Project Officer & EPA Designated Approving Official (DAO), EPA Region 4, Sam Nunn Federal Center, 61 Forsyth Street Southwest, RCR Division, Brownfields Section, 10<sup>th</sup> Floor, Atlanta, Georgia 30303-8960, Phone: 404.562.8574, Email: [street.derek@epa.gov](mailto:street.derek@epa.gov)
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#### ***A4. PROJECT/TASK ORGANIZATION***

Cardno was selected by the City of Atlanta (City) as their Qualified Environmental Professional (QEP) and is responsible for conducting the underground storage tank (UST) removal and assisting the City in programmatic support services and grant management activities under their Environmental Protection Agency (EPA) Cooperative Agreement Recipient Number BF 00D59517-0. A project organization chart is included in **Appendix A**. The following are the individuals participating in the project and their specific roles and responsibilities:

**Derek Street, EPA Region 4 Brownfields Project Officer/DAO** - The EPA Project Officer is responsible for overseeing and monitoring the grant. As part of that responsibility, he ensures the processes described in the work plan are followed and the terms and conditions of the grant are met. The Brownfields Region 4 Quality Assurance Manager's DAO provides technical assistance to the Region 4 Project Officer working on Brownfields sites. The DAO's role is to provide technical reviews of the Generic QAPPs and Site-specific QAPP Addenda that are generated. This includes the approval of the Generic QAPP and Site-Specific QAPP Addenda and any revisions.

**Shannon Ridley, Georgia Environmental Protection Division (EPD) Brownfields Program Manager** – Upon entry into the Georgia EPD Brownfields Program, she is involved in the review and approval of the final site assessment plan(s), Site-Specific QAPP Addenda, and report(s), as necessary. She also ensures that plans are in compliance with the current GA EPD rules and regulations. If a potential purchaser is pursuing a Brownfields Agreement with GA EPD, she would be involved in scoping the necessary assessment and cleanup requirements to achieve the agreement.

**Jessica Lavandier, City of Albany Brownfields Program Manager** – She is responsible for the overall strategic direction of the project and ensures project activities are executed in accordance with the approved Work Plan and the Terms and Conditions of the Cooperative Agreement.

**Keith Ziobron, Cardno Project Manager** – He is the primary decision maker for the project and the primary user of the data to determine whether or not further action is required at the site. He will also coordinate the project activities and his specific responsibilities are:

1. Approving the QAPP and subsequent revisions in terms of Brownfields specific requirements;
2. Overall responsibility of the investigation;
3. Coordinating field and laboratory activities;
4. Conducting project activities in accordance with the QAPP and work order;
5. Validating field data;
6. Reporting to the GA EPD Project Manager and the City's Brownfields Program Director regarding the project status per the work order and preparing interim and final reports to GA EPD and the City;
7. Making final project decisions with the authority to commit the necessary resources to conduct the project;
8. Instituting corrective actions for problems encountered in the field sampling activities;

9. Communicating corrective actions to the Field Team Leader to remedy problems encountered in the field and coordinating with the lab director to correct any corresponding problems encountered in the chemical analyses;
10. Compiling documentation detailing any corrective actions and providing them to the GA EPD Project Manager.

**Doug Strait, P.E., Assistant Project Manager** – He will perform the following duties:

1. Assist the project manager with the QAPP and subsequent revisions in terms of Brownfields specific requirements;
2. Instituting corrective actions for problems encountered in the field sampling activities;
3. Communicating corrective actions to the Field Team Leader to remedy problems encountered in the field and coordinating with the lab director to correct any corresponding problems encountered in the chemical analyses;
4. Compiling documentation detailing any corrective actions and providing them to the GA EPD Project Manager.

**Roger Register, Cardno QA/QC Reviewer** – He provides documentation audits and technical review to assist in promoting, implementing, and documenting QA compliance. The Cardno QA/QC Reviewer is isolated from the implementation Cardno Project Manager. This allows lateral support as a peer to the Cardno Project Manager without introducing unintentional biases from conducting the work.

**W. Ashton Smithwick, Cardno Field Team Leader** – He will perform the following duties:

1. Select the field sampling team and discuss project details with the Project Manager.
2. Conduct the field activities per the approved QAPP documents and supervise the field sampling team.
3. Upon receipt from the Project Manager, make available the approved QAPP documents and subsequent revisions to the members of the field sampling team.
4. Report problems in the field to the Project Manager.
5. Implement corrective actions in the field as directed by the Project Manager. Corrective actions will be documented in the field logs and provided to the Project Manager.

**Cardno Field Team Technicians** – These individuals will perform the actual fieldwork per the QAPP and at the direction of the field team leader. The field team typically consists of two (2) to four (4) people and will be named at a later date by the field team leader.

**Laboratory Director** – The Laboratory Director is responsible for the following:

1. Coordinating the analysis of the samples and the laboratory validation of the data;
2. Coordinating the receipt of the samples at the laboratory, selecting the analytical team, ensuring internal laboratory audits are conducted per the Laboratory's Quality Assurance Manual (QAM), and distributing the applicable sections of the QAPP and subsequent revisions to members of the analytical team;
3. Instituting corrective actions for problems encountered in the chemical analyses and reporting laboratory problems affecting the project data to the Cardno Project Manager and Cardno QA/QC

Reviewer. Corrective actions for chemical analyses will be detailed in a QA report that will be provided via electronic and conventional mail.

#### *A5. PROBLEM DEFINITION/BACKGROUND*

The subject site (Subject Site or Subject Property) is currently a vacant one-story approximately 1,200 square-foot concrete building which formerly supported a convenient store and a fueling island canopy approximately 350 square-feet. The subject site contains two 4,000-gallon and one 2,000-gallon gasoline underground storage tanks (USTs) northwest of the island dispensers. All tanks were reportedly steel and are listed as temporarily out of use by the GA EPD. Two separate soil and groundwater investigations were conducted around the USTs in June 2017 and April 2018 identified minor petroleum contamination in the soil, below any applicable GA EPD reporting thresholds. Non-petroleum contamination was identified in the groundwater, likely associated with a historic dry cleaners. The site was submitted into the GA EPD Brownfield Cleanup Program (BCP) in June 2018.

The USTs are located on the north portion of the site, at the intersection of McDonough Boulevard SE and Jonesboro Road SE. A Site Location map with the approximate UST locations, fuel line, and dispensers are included as an **Appendix B**.

Prior environmental assessments have been conducted on the Subject Property and the southeast adjoining property (1326 Jonesboro Road SE). The following briefly lists each event in chronological order:

- Logic Environmental, Inc. (LOGIC) conducted a Phase II Environmental Site Assessment (ESA) on June 30, 2017. Testing was performed as part of due-diligence activities to assess for potential petroleum product impact to the Subject Site subsurface as a result of the historical uses of 105 McDonough Blvd. SE and 1326 Jonesboro Road SE as petroleum service stations. Benzene was discovered in soil at 0.099 parts per million (ppm) which is above the maximum contaminant level (MCL) but is below the Georgia Environmental Protection Division (EPD) – Underground Storage Tank Management Program (USTMP) applicable regulatory threshold. Benzene was also discovered in the groundwater at 1,800 parts per billion (ppb), above the MCL and above the EPD-USTMP applicable regulatory threshold. Ethylbenzene was discovered in the groundwater at 1,000 ppb, above the MCL but below the EPD-USTMP applicable threshold. Xylenes were discovered in the groundwater at 4,500 ppb, below the MCL. Additionally, the following volatile organic compounds (VOCs) were discovered in the groundwater: 2-hexanone, 4-methyl-2-pentanone, cyclohexane, isopropylbenzene, and methylcyclohexane. However, these constituents do not have an established regulatory threshold.
- One Consulting Group (One Group) conducted a modified Phase II ESA on April 6, 2018. Four soil borings, SB-1 through SB-4, were advanced on the 1326 Jonesboro Road SE property and 105 McDonough Blvd. SE property. All soil borings were advanced to groundwater using direct push technology. The soil and groundwater samples collected were analyzed for VOCs to assess dry-cleaning solvent and petroleum hydrocarbon impact. VOC constituents were not discovered above detection limits in any of the analyzed soil samples. However tetrachloroethene was discovered in groundwater sample SB-1 at a concentration of 19.9 parts per billion (ppb), above the applicable reporting threshold. Benzene

was discovered in groundwater samples SB-2 and SB-4 at a maximum concentration of 27.9 ppb; these detections are above the applicable reporting threshold. Ethylbenzene was detected in groundwater sample SB-2 at a concentration of 71.4 ppb, below the applicable reporting threshold. Total xylenes were detected in groundwater sample SB-2 at a concentration of 31.7 ppb, below the applicable reporting threshold. Naphthalene was discovered at a maximum concentration of 121 ppb in groundwater samples SB-2, SB-3 and SB-4. These concentrations were below the applicable reporting threshold of 200 ppb. 1,2-dichloroethane was discovered in groundwater sample SB-2 at a concentration of 1.7 ppb, below the applicable reporting threshold.

- One Group submitted a Prospective Purchaser Corrective Action Plan (PPCAP) on June 26, 2018 and proposed the following Corrective Action Plan:
  - The underground storage tanks (USTs) at 105 McDonough Blvd. SE will be closed or removed per EPD UST Closure Guidance.
  - Corrective action will be performed on the Subject Property soils that exceed the applicable non-residential, Type 3 or 4 Soil Risk Reduction Standards (SRRS).
  - Corrective action of source material at the Subject Property, if required, will be performed by methods that prevent contamination of the surrounding environment, are in accordance with federal, state, and local laws and protect personnel in the excavation area.
  - Corrective action will be performed on any identified Subject Property soil that exceeds applicable SRRS to the limits determined by delineation soil sampling. Soil samples will be collected in accordance with the EPD UST Closure Guidance.
  - In the event soil excavation, transport, and disposal is required at the Subject Property, characterization soil samples of any excavated material will be collected and analyzed by a qualified laboratory in accordance with the selected permitted disposal facility's requirements. Excavated material that requires off-site disposal will be placed directly into roll-off containers or onto covered, asphalt pavement with appropriate cover and erosion control.
  - The corrective action extent of impacted soil areas will be confirmed through verification soil sampling at designated intervals along sidewalks and pit bottom and will be submitted to EPD for approval.
  - The potential for vapor intrusion will be evaluated as part of the site characterization activities. In the event that the vapor intrusion pathway is found to be complete, mitigation options will be considered and performed on the Subject Property that would be required under applicable laws.
  - Asbestos-containing materials (ACM) and lead-based paint (LBP), if present, will be managed appropriately at the Subject Property. All renovation and/or demolition plans for the property will include measures for the proper identification, removal, management, and disposal of ACMs and



LBP in accordance with §391-3-24 of the Georgia Rules of Lead-Based Paint Hazard Management and §391-3-14 of the Georgia Rules for Asbestos Removal and Encapsulation.

Prior reports for the Subject Property are included in **Appendix C**.

The purpose of this UST removal is to identify and delineate any known contamination in the area of the tank pit and remove the USTs prior to future development. The UST removal proposed was deemed eligible and funded with the FY2017 City of Atlanta EPA Brownfields Assessment Grant, as documented in the signed site eligibility form included in **Appendix D**. Grant funding, or a portion thereof, will be provided via the City's Assessment Grant using petroleum funding.

#### *A6. PROJECT/TASK DESCRIPTION AND SCHEDULE*

Based on the findings of the previous investigations and the existence of USTs on the Subject Property, the following section provides recommended actions to be conducted as part of the UST removal to further evaluate the identified contamination and to fill in any data gaps.

##### **UST Removal and Soil Investigation**

Prior to beginning the field investigation, a Site Health and Safety Plan (HASP) for Cardno personnel and Cardno's subcontractors will be prepared to meet the requirements of the Occupational Safety and Health Administration (OSHA) Standard 1910.120. This document will outline potential hazards, the level of personal protection to be used, and the procedures to be followed for monitoring and emergency situations at the subject site. It is assumed that the fieldwork will be performed in Level D personal protection (i.e. steel-toed boots, hard-hats, safety glasses, and hearing protection). The Utility Protection Center will be contacted at least 72 hours prior to initiating the fieldwork to locate utilities.

Prior to UST removal, as a part of the Scope of Work for the UST removal, a Ground Penetrating Radar (GPR) survey will be completed on December 28, 2018 at 105 McDonough Boulevard SE to identify the registered USTs and verify location of underground utilities.

Pursuant to Section B of the UST Closure Guidance, a total of two soil samples per UST will be collected for a total of six samples underneath the USTs. Additionally, a soil sample will be collected from the stockpile, from beneath the dispenser island and from every 25 feet of fuel line. The purpose of each sampling location is further discussed in Section B1 below, and the Proposed Soil Sampling Location Map figure is included in **Appendix B**.

##### **Project Schedule**

Fieldwork will be completed during the course of two to three business days. Collected samples will be delivered to the laboratory for analysis within the established holding time as defined in the Generic QAPP. Laboratory results will be provided to the Cardno Project Manager within ten (10) business days of sample receipt.

The final laboratory sample reports will summarize project results, and will include the QC data. The data validation report and raw data package will be maintained and be available to the Project Manager and the QA/QC Officer. The laboratory report will be submitted to the City of Atlanta, the GA EPD, and the EPA

Project Officer as part of the final report.

A proposed implementation schedule is provided below. This schedule assumes a four-week schedule to carry out the supplemental Phase II ESA activities.

Table 1 – Project Schedule

Task	Approximate Start Date	Approximate End Date	Actual End Date/Progress Notes
Site Eligibility Authorized	October 23, 2018	October 25, 2018	October 25, 2018
Site Specific QAPP	December 17, 2018	December 28, 2018	-
Site HASP	January 7, 2018	January 7, 2018	-
GPR Survey	December 28, 2018	December 28, 2018	-
Field Work Activities	January 28, 2019	January 30, 2018	-
Laboratory Analysis	January 30, 2019	February 7, 2019	-
UST Closure Report	January 31, 2019	February 14, 2019	-

#### A7. QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT

As outlined in the Generic QAPP, the following seven steps are used to determine the criteria for project specific data quality objectives (DQO) when performing assessment projects and funded under this EPA Brownfields Community Wide Cooperative Agreement (CAR) No. BF 00D59517-0.

1) State the Problem:

Two 4,000-gallon USTs and one 2,000-gallon UST are currently temporarily out-of-use on the Subject Property. These USTs have the potential to release fuel or residual fluids on the Subject Property and impact soil, vapor, and/or groundwater.

2) Identify the Decision

Perform supplemental UST removal/closure and collect soil samples to identify contaminated soil around the location of the three USTs.

3) Identify Inputs to the Decision

- Previous subsurface investigation documentation conducted at the site
- Historical records and documents

4) Define the Study Area Boundaries

Site Location Map included in **Appendix B**.

5) Develop a Decision Rule

Authorized by the City and EPA to proceed with the UST removal/closure on October 25, 2018.

6) Specify Limits on Data Gaps/Errors

Limits on data gaps and errors associated with analytical sampling specified in Generic QAPP and throughout this document.

7) Optimize Design

The optimized design consists of the sampling plan as discussed in Section B1 below and outlined in the Proposed Soil Sample Location Map included in **Appendix B**.

*A8. SPECIAL TRAINING REQUIREMENTS/CERTIFICATIONS*

In addition to the applicable training requirements and certifications for environmental field technicians and analytical laboratories provided in the approved Generic QAPP, a qualified excavation contractor experienced with UST removals under the supervision of a Cardno professional engineer/geologist will be contracted to facilitate project objectives.

*A9. DOCUMENTATION AND RECORDS*

The principals provided in this section of the Generic QAPP for project records, sample collection and submission, chain of custody, investigation derived waste disposal, and laboratory results apply to this project. In addition to the specific EPA Region 4 Standard Operating Procedures (SOPs) which the Generic QAPP cites will be utilized and followed during this project and is included as **Appendix E**.

*B1. SAMPLING DESIGN PROCESS*

**Excavation, Removal, Soil Sampling, and Backfill**

Cardno will mobilize a four-wheel backhoe to the subject site to excavate the soil above and around the identified UST. Upon clearance of soil, a vacuum truck will be mobilized to remove any residual contamination (oil, gas, etc.) from the UST. All other residual fluids and/or sludge will be vacuumed out as well, and the UST will be de-greased, washed, and rinsed with all wastewater being removed by a vacuum truck. The contents of the vacuum truck will be disposed of at a Recycling and Treatment facility to be treated and properly disposed. The UST will then be excavated, removed from the pit, and properly disposed at a recycling facility. An estimated 83 tons of soil will be excavated and stockpiled on-site.

During the removal, soil samples will be collected in accordance with the Georgia EPD UST Closure Report Guidance Document. Specifically, two soil samples per UST will be collected from the underlying soil at each end of the USTs, one sample at each dispenser island, one sample per 25 linear feet of fuel line, and one sample from the stockpiled soil. All soil samples will be analyzed for Benzene, Toluene, Ethylbenzene, and

Xylenes (BTEX) via EPA Method 8260B, Polycyclic Aromatic Hydrocarbons (PAHs) via EPA Method 8270, Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) via EPA Method 8015B, and TPH Diesel Range Organics (DRO) via EPA Method 8015B. All soil samples will be submitted to an accredited laboratory for analysis. The soil samples collected underneath the tank, dispensers, and fuel line will be analyzed utilizing a standard five-day turnaround time. For waste disposal purposes, the soil sample taken from the stockpiled soil will be submitted for next day turnaround time.

Pursuant to Section D of the UST Closure Guidance, unless analytical results indicate otherwise, the stockpiled soil is anticipated to be utilized as backfill. Any remaining void space will be backfilled with "clean" compactable soil to original surface grade. The backfill will be compacted with the excavator, and no compaction testing will be performed. The site will be restored and all remaining equipment and tools removed from the site.

If the stockpile soil requires disposal at a subtitle D landfill, an additional approximately 83 tons of "clean" compactable soil will be required at an additional cost.

If contamination is identified during the closure, over excavation will be conducted and vertical delineation sampling will be performed at additional cost. Planned soil sampling has been located based primarily on the area in which the USTs, dispensers, and fuel lines are estimated to be located. All investigative activities will be in accordance with the Georgia UST Closure Guidance, included in **Appendix E**. *It should be noted that execution of the planned assessment activities will not commence until this Site-Specific QAPP is approved by the EPA.*

#### ***B2. SAMPLING & ANALYTICAL METHOD REQUIREMENTS***

Information provided in the Generic QAPP specific to soil sampling is applicable to this project.

Any investigative derived waste (IDW) generated during this assessment that may be characterized as hazardous waste (disposable personal protection equipment and excavated soils, etc.) will be containerized and properly labeled until appropriate analytical tests are conducted to determine its waste characterization. IDW generated (soil, sediment, and/or liquid) on site that is characterized as non-hazardous will be placed on the ground or returned to the source if doing so does not endanger human health or the environment or violate federal or state regulations. Any identified containerized hazardous waste that is stored on site will be manifested and shipped to a permitted treatment and/or disposal facility. All management of IDW will be conducted in accordance with EPA Region 4 SESDPROC-202-R3 SOP, included in **Appendix E**.

#### ***B3. SAMPLE HANDLING & CUSTODY REQUIREMENTS***

The sample handling and custody procedures outlined in the Generic QAPP are applicable to this project.

#### ***B4. ANALYTICAL METHODS AND REQUIREMENTS***

The corresponding Generic QAPP section is applicable to this project. Samples collected under the scope of this project will be submitted for laboratory analysis of constituents as specified in Section B1. A laboratory

turnaround time of five (5) business day is anticipated.

#### *B5. FIELD QUALITY CONTROL REQUIREMENTS*

Field quality control guidelines for soil samples are provided in the Generic QAPP and will be followed for this project. Specifically, one duplicate soil sample and one matrix spike/matrix spike duplicate (MS/MSD) soil sample pair will be collected in the field. A trip blank for each sample shipment will be provided by the laboratory. All quality control samples will be submitted for laboratory analysis of the project constituent suite.

#### *B6. LABORATORY QUALITY CONTROL REQUIREMENTS*

The selected laboratory, Analytical Environmental Services (AES), will follow quality control procedures at all times for soil samples to be analyzed. Laboratory quality documentation is provided in the Generic QAPP.

#### *B7. FIELD EQUIPMENT AND CORRECTIVE ACTION*

Field equipment calibration and inspection procedures are outlined in the Generic QAPP. Reusable sampling equipment including water level meters, stainless steel bowls, and stainless steel spoons will be decontaminated between uses.

#### *B8. LAB EQUIPMENT AND CORRECTIVE ACTION*

The selected laboratory's (AES) QAM/LQM addresses the testing, inspection, and maintenance for the analytical instruments and is provided in the Generic QAPP.

#### *B9. ANALYTICAL SENSITIVITY AND PROJECT CRITERIA*

Analytical method sensitivity and project criteria for the analytical methods within the scope of this project is determined by the selected laboratory, AES. Their Quality Assurance Manual specifying the analytical method sensitivity and project criteria for analytical methods is included in the Generic QAPP. In addition, minimum detection limits for soil and groundwater samples will comply with the Georgia Comparison of Existing Contamination to Risk Reduction Standards (Rule 391-3-19.07).

#### *B10. DATA MANAGEMENT AND DOCUMENTS*

Data and document management procedures provided in the Generic QAPP are applicable to this project.

#### *C1. ASSESSMENT AND RESPONSE ACTIONS*

Assessment and response action procedures provided in the Generic QAPP are applicable to this project.

#### *C2. PROJECT REPORTS*

Execution of proposed field activities will not commence until this Site Specific QAPP is approved by the EPA. In addition to the development of this Site-Specific QAPP Addendum, a UST Closure Report will be created based on the findings of the planned UST removal. The Generic QAPP provides a report outline and

submittal process which will be followed for this project.

*D1. FIELD DATA EVALUATION*

Field data evaluation procedure provided in the Generic QAPP are applicable to this project.

*D2. LABORATORY DATA EVALUATION*

Laboratory data evaluation procedures provided in the Generic QAPP are applicable to this project.

*D3. DATA USABILITY AND PROJECT VERIFICATION*

Data usability and project verification procedures provided in the Generic QAPP are applicable to this project.

### LIST OF ABBREVIATIONS

ABCA	Analysis of Brownfields Cleanup Alternatives
AOC	Area of Concern
ASTM	American Society for Testing and Materials
bgs	Below Ground Surface
BS	Blank Spike
BSD	Blank Spike Duplicate
BSA	Brownfields Site Assessment
BSRA	Brownfields Site Rehabilitation Agreement
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
C	Celsius
CD	Compact Disc
COC	Contaminants of Concern
CTL	Cleanup Target Levels
DAO	(EPA) Designated Approving Official
DEFT	Decision Error Feasibility Trials
DO	Dissolved Oxygen
DPT	Direct Push Technology
DQO	Data Quality Objective
DRO	Diesel Range Organics
e.g.	exempli gratia - for example
ESA	Environmental Site Assessment
ECD	Electron Capture Device
FID	Flame Ionization Detector
GC	Gas Chromatography
GC-MS	Gas Chromatography – Mass Spectrometry
GIS	Geographic Information Systems
GPS	Global Positioning Satellite
GRO	Gasoline Range Organics
HAZWOPER	Hazardous Waste Operations and Emergency Response
HPLC	High Performance Liquid Chromatography
ICP	Inductively Coupled Plasma
ID	Identification
i.e.	<i>id est</i> - that is
ISHB	Inactive Hazardous Sites Branch
IUPAC	International Union of Pure and Applied Chemistry
kg	kilogram
L	Liter
LCS	Laboratory Control Sample
LIMS	Laboratory Information Management System
MCL	Maximum Contaminant Level
MDLs	Method Detection Limits
MIP	Membrane Interface Probe

### *LIST OF ABBREVIATIONS*

mL	Milliliter
MNA	Monitored Natural Attenuation
MTBE	Methyl tert-butyl ether
MW	Monitor Well
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
NC	North Carolina
NCBP	North Carolina Brownfields Program
NELAC	National Environmental Laboratory Accreditation Conference
NCDEQ	North Carolina Department of Environmental Quality
ORP	Oxidation Reduction Potential
OSHA	Occupational Safety and Health Administration
OVA	Organic Vapor Analyzer
PAHs	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated biphenyl
PE	Performance Evaluation
P.E.	Professional Engineer
P.G.	Professional Geologist
PID	Photo-ionization Detector
PQLs	Practical Quantification Limits
QA	Quality Assurance
QAM	Quality Assurance Manual
QAP	Quality Assurance Plan
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RL	Reporting Limit
RPD	Relative Percent Difference
ROAO	Regional Quality Assurance Designated Approving Official
RSC	Regional Screening Levels
SESD	Science and Ecosystem Support Division
SPLP	Synthetic Precipitate Leaching Procedures
SRG	Soil Remediation Goals
SS	Soil Sample
SW	Solid Waste
SVOC	Semi-Volatile Organic Compounds
SOP	Standard Operating Procedure
TAL	Target Analyte List
TCL	Target Compound List



*LIST OF ABBREVIATIONS*

TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TQM	Total Quality Management
USC	United Soil Classification
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
µg	microgram
ug	microgram
VOC	Volatile Organic Compounds

# Appendix A

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## Project Organizational Chart

# Quality Assurance Project Organizational Chart



**Georgia EPD**  
Brownfields Unit Manager  
» *Shannon Ridley*

**City of Atlanta**  
Brownfields Program Manager  
» *Jessica Lavandier*

**USEPA**  
Brownfields Project Manager/DAO  
» *Derek Street*



**Cardno**  
Project Manager  
» *Keith Ziobron, P.E.*

**Cardno**  
QA/QC Officer  
» *Roger Register*

**Cardno**  
Assistant Project Manager  
» *Doug Strait, P.E.*

**Cardno**  
Field Team Leader  
» *Ashton Smithwick*

Subcontracted Services	
<b>Laboratories:</b> <i>Xenco</i> <i>Analytical Environmental Services, Inc. (AES)</i> <i>Pace Analytical</i>	<b>Drilling Services</b>
	<b>Investigation Derived Waste Disposal</b>
	<b>Asbestos/Lead-Based Paint/IAQ Screenings</b>
	<b>Soil Removal</b>

# **Appendix B**

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## **Site Location Map & Proposed Sample Location Map**



### Legend

Approximate Site Boundary (For reference purposes only, not a surveyed boundary)

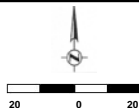


Source: Google  
Earth

on St SE

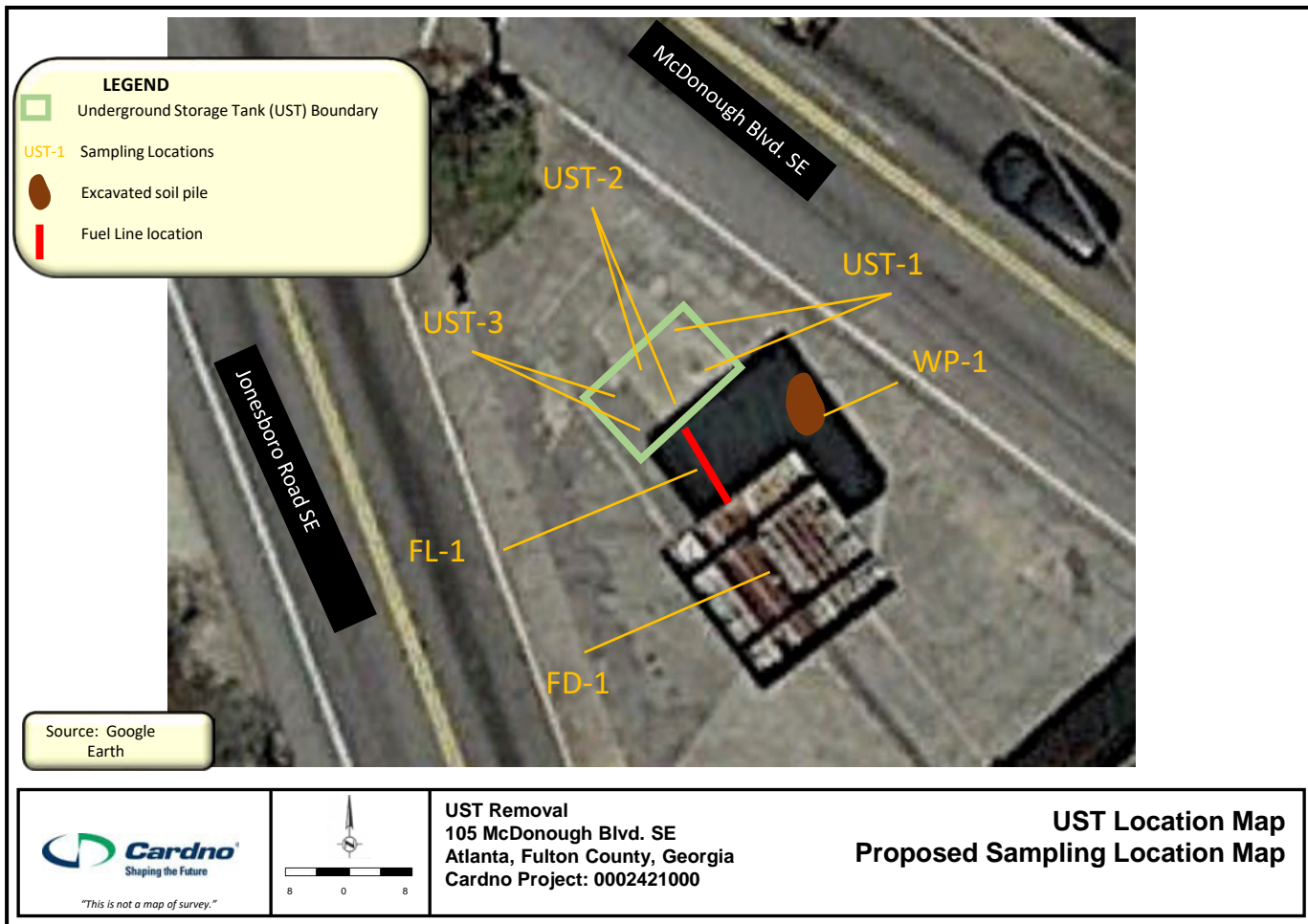


"This is not a map of survey."



UST Removal  
105 McDonough Boulevard SE  
Atlanta, Fulton County, Georgia  
Cardno Project: 0002421000

Site Boundary Map



# Appendix C

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## Prior Reports



SE

Land Protection Branch

3 Phone: 404-657-8600

Georgia Environmental Protection Division 2 Martin Luther King Jr. Dr.

Suite 1054 East Tower  
Response and Remediation Program  
Atlanta, Georgia 30334  
Response Development Units 1 -

## Document Submittal Form

**Instructions:** This form should be completed and included with any document submitted to the Response and Remediation Program, Response Development Units 1 - 3, that is greater than 25 pages in length or that contains paper sizes larger than 11"x17". This includes Release Notifications and documents related to Hazardous Site Inventory and Voluntary Remediation Program sites. Contact Brownfield Unit staff for Brownfield submittal guidelines. Your cooperation helps to ensure that documents are filed correctly, completely, and efficiently.

Name of Document:	Prospective Purchase Corrective Action Plan
Date of Document:	June 26, 2018
Site Name:	105 McDonough Blvd. SE and 1326 Jonesboro Rd. SE
Site ID Number:	NA

**Document Submittal Checklist.** Please certify that the submittal includes the following by checking each box as appropriate. Items 1 - 3 should be checked / included / certified for each submittal:

- ☒ 1. One paper copy of the document (double-sided is preferred)
- ☒ 2. Two compact discs (CDs), each containing an electronic copy of the document as a single, searchable, Portable Document Format (PDF) file. Only one CD is needed for Release Notifications. CDs should be labeled at a minimum with the following: 1) Name of Document, 2) Date of Document, 3) Site Name, and 4) Site Number. Any scanned images should have a resolution of at least 300 dpi and should be in color if applicable.
- ☒ 3. The electronic copies are complete, virus free, and identical to the paper copy except as described in Item 4 below.
- ☐ 4. (Optional) To reduce the size of the paper copy, certain voluminous information has been omitted from the paper copy and is included only with the electronic copies:
  - ☐ laboratory data sheets
  - ☐ manifests
  - ☐ other: NA

I certify that the information I am submitting is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: 

Name (printed): Ryan Williams

Date: 6/28/2018

Received Date  
(for PRD use only)  
Land Protection Branch

JUN 28 2018

Hazardous Waste





# GEORGIA BROWNFIELD PROGRAM ELIGIBILITY FORM

- ☒ Purchase date or closing date for real estate transaction (mm/dd/yyyy) May 30, 2018
- ☒ Due date for submission of the final prospective purchaser compliance status report (mm/dd/yyyy) January 1, 2022
- ☒ A \$3,000 APPLICATION FEE IN THE FORM OF A CHECK PAYABLE TO THE GEORGIA DEPARTMENT OF NATURAL RESOURCES
- ☒ A COPY OF THE WARRANTY DEED FOR THE SUBJECT PROPERTY, OR, IF NOT AVAILABLE, OTHER DOCUMENTS GIVING THE PROPERTY'S LEGAL DESCRIPTION AND/OR A COPY OF A TAX PLAT OR OTHER FIGURE SHOWING PROPERTY BOUNDARIES
- ☒ TWO (2) PAPER COPIES AND TWO (2) COMPACT DISC (CD) COPIES OF THE PROSPECTIVE PURCHASER COMPLIANCE STATUS REPORT (PPCSR) OR PROSPECTIVE PURCHASER CORRECTIVE ACTION PLAN (PPCAP) IN A SEARCHABLE PORTABLE DOCUMENT FORMAT (PDF)

## BROWNFIELD PROPERTY INFORMATION

PROPERTY STREET ADDRESS 105 McDonough Boulevard SE and 1326 Jonesboro Road SE

CITY Fulton COUNTY Atlanta ZIP CODE 30315

TAX PARCEL NUMBER(s) 14 005600050611 (105), 14 005600080345 (1326) PROPERTY NAME (if applicable) 105 McDonough Blvd., LLC

SIZE IN ACRES 0.384 LATITUDE 33.7188170° LONGITUDE 84.3847630°

PLEASE CHECK ALL OF THE FOLLOWING THAT APPLY:

- ☒ Underground Storage Tanks
  - ☒ Currently on Site (includes tanks that were closed in place)
  - ☐ Removed Provide date of "No further action" letter \_\_\_\_\_

☐ Landfills or buried debris (past or present)

☐ HSRA Release Notification Provide date Notification was filed \_\_\_\_\_

☐ Date of Non-listing letter (if applicable), \_\_\_\_\_

OR

☐ Listing Date \_\_\_\_\_

and HSI Site Number \_\_\_\_\_

## PROSPECTIVE PURCHASER INFORMATION

NAME Jeff Delp TITLE Manager

COMPANY (if applicable) 105 McDonough Blvd., LLC

ADDRESS P.O. Box 17682, Atlanta, Georgia 30316

PHONE (404) 627-4304 FAX Not applicable E-MAIL jeff@fcsministries.org

**PROPERTY QUALIFYING CRITERIA**  
**§ 12-8-205 of the Brownfield Act**

**I certify to the best of my knowledge:**

- This property has a pre-existing release.
- This property is not listed on the National Priorities List pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act.
- This property is not currently undergoing response activities as required by an order of the federal Environmental Protection Agency.
- This property is not currently subject to a hazardous waste facility permit as defined by Georgia Code Section 12-8-62.

**I certify to the best of my knowledge:**

- I am not a person who has contributed or is contributing to a release at the property, or a relative by blood within the third degree of consanguinity or by marriage, an employee, shareholder, officer, or agent; or otherwise affiliated with the current owner of the property or any person who has contributed to a release at the property.
- The purchasing corporation or other legal entity, is not a current or former subsidiary, division, parent company, or partner; or employer or former employer; or otherwise affiliated with the current owner of the property or any person who has contributed to a release at the property.
- I certify that I am not in violation of any order, judgment, statute, rule, or regulation subject to the enforcement of the Director.

**I certify that this document and all attachments were prepared under my direction or supervision and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.**

105 McDonough Blvd., LLC. Jeff Delp, Manager			6/27/18
Prospective Purchaser's Name (Print)			Date
<b>AUTHORIZED AGENT (if applicable)</b>			
NAME Ryan Williams		TITLE Consultant	
COMPANY (if applicable) One Consulting Group, Inc.			
ADDRESS Post Office Box 54382, Atlanta, Georgia 30308			
PHONE 404.815.8005 x 105	FAX 404.815.8002	E-MAIL ryan@onecgroup.com	
<b>TECHNICAL CONTACT PERSON (CONSULTANT, CONTRACTOR, ETC.)</b>			
NAME Ryan Williams		TITLE Consultant	
COMPANY One Consulting Group, Inc.			
ADDRESS Post Office Box 54382, Atlanta, Georgia 30308			
PHONE 404.815.8005 x 105	FAX 404.815.8002	E-MAIL ryan@onecgroup.com	

June 26, 2016

Georgia Department of Natural Resources  
Environmental Protection Division  
Land Protection Branch, Brownfield Development Unit  
2 Martin Luther King Jr. Drive SE  
Suite 1154, East Tower  
Atlanta, Georgia 30334

Subject: **Prospective Purchaser Corrective Action Plan  
105 McDonough Blvd., LLC  
105 McDonough Boulevard SE and 1326 Jonesboro Road SE  
Atlanta, Fulton County, Georgia 30315  
One Group Project #A18023**

To Whom It May Concern:

One Group (One Consulting Group) respectfully submits this PPCAP (Prospective Purchaser Corrective Action Plan) pursuant to the Brownfield Act, O.C.G.A. Section 12-8-200, ("Brownfield Act" or "Act") on behalf of our client, 105 McDonough Blvd., LLC.

Thank you for the opportunity to be of service.

If you have any questions, please do not hesitate to contact call at (404) 815-8005 x 105.

Sincerely,  
**One Consulting Group, Inc.**



Robert Brawner, CHMM  
Reviewer/Principal

Ecc: Jeff Delp, 105 McDonough Blvd., LLC

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## APPENDICES

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## 1.0 BACKGROUND

### 1.1 GENERAL PROPERTY INFORMATION

The Property consists of two parcels totaling 0.324-acres. 1326 Jonesboro Road SE is an approximate 0.15-acre commercial parcel developed with a vacant petroleum service station. Parcel improvements consist of an approximate 1,175 square-foot building, petroleum product dispensing system, a dispenser island, and a dispenser island canopy. The petroleum product dispensing system consists of two 4,000-gallon gasoline USTs (underground storage tanks), one 2,000-gallon gasoline UST, and two petroleum product dispensers. 1326 Jonesboro Road SE is an approximate 0.15-acre parcel without any structural improvements. An unpaved portion of Martin Street SE is located between the Property parcels. It extends west to east between McDonough Boulevard SE and Jonesboro Road SE.

According to the Fulton County Board of Assessor's office, the Property is identified by the following:

- Tract 1, tax parcel #14 005600050611, a 0.171-acre parcel at 105 McDonough Boulevard SE, owned by 105 McDonough Blvd., LLC;
- Tract 2, tax parcel #14 005600080352, a 0.152-acre parcel at 1326 Jonesboro Road SE, owned by 105 McDonough Blvd., LLC;

The Property's legal descriptions and survey are provided in Appendices A and B, respectively.

### 1.2 SURROUNDING PROPERTY INFORMATION

The following describes the current, surrounding property-use.

#### 1.2.1 North

McDonough Boulevard SE directly borders the Property to the north followed vacant land. This area is bordered by Grape Street SE then commercial development.

#### 1.2.2 South

Single-family development borders the Property to the south.

#### 1.2.3 East

McDonough Boulevard SE and wooded land directly borders the Property to the east. This is followed by single-family development.

#### 1.2.4 West

Jonesboro Road SE directly borders the Property to the west followed by a mix of commercial and single-family development. The commercial development consists of a retail strip plaza.



### 1.3 HISTORICAL REVIEW

An Environmental Site Assessment has been prepared under separate cover for the Property by One Group dated April 20, 2018. According to historical information, the 105 McDonough Boulevard SE and 1326 Jonesboro Road SE portions of the Property were commercially developed in 1911, most likely from either undeveloped or residentially-developed land. 105 McDonough Boulevard SE was redeveloped with the existing commercial improvements in 1950. 1326 Jonesboro Road SE was commercially developed from at least 1911 to 1988. The structural improvements on this Property parcel were demolished/removed between 1988 and 1993, and has remained undeveloped to present.

Historical petroleum service stations formerly operated on-Property at 105 McDonough Boulevard SE (Tract 1). They were identified as Stephens Service, Johnson American, Johnson Amoco, and Johnson Texaco from at least 1958 to 2008. This Property parcel contains a petroleum product dispensing system consisting of: two 4,000-gallon gasoline USTs, one 2,000-gallon gasoline UST, and two product dispensers. Regulatory documents indicate the USTs are considered "temporarily closed".

1326 Jonesboro Road SE (Tract 2) operated as various petroleum service stations from at least 1940 to 1970. They were identified as Hutchinson Filling Station, Hutchinson Service Station, and PAM Johnson Service Station. Additionally, 115 McDonough Boulevard SE operated Dodson Filling Station; however, it is believed to have been associated with 1326 Jonesboro Road SE. Regulatory information was not available for the underground storage tanks' proper closure, construction, and/or period of operation. During this time period underground storage tanks were minimally regulated.

### 1.4 ENVIRONMENTAL INVESTIGATION

LOGIC (Logic Environmental, Inc.) performed previous subsurface soil and groundwater testing that was presented in a Phase II Soil and Groundwater Assessment for the Property dated June 30, 2017. Laboratory analytical results discovered BTEX (benzene, toluene, ethylbenzene, and xylenes) constituent impact to the subsurface of 105 McDonough Boulevard SE and 1326 Jonesboro Road SE. Benzene was discovered in the subsurface soil at 105 McDonough Boulevard at a maximum concentrations of 0.099 ppm (parts per million or milligrams per kilogram), above the MCL (maximum contaminant level) of 0.020 ppm. However, this concentration was below the EPD (Georgia Environmental Protection Division)-USTMP (Underground Storage Tank Management Program) applicable regulatory threshold of 11.30 ppm. The remaining constituents were not discovered above their respective MCLs or EPD-USTMP applicable regulatory thresholds. BTEX was not discovered above laboratory detection limits in the subsurface soil at 1326 Jonesboro Road SE. Benzene was discovered in the groundwater beneath 105 McDonough Boulevard SE at a maximum concentration of 1,800 ppb (parts per billion or micrograms per liter), above the MCL of 5 ppb and above the EPD-USTMP applicable regulatory threshold of 51 ppb. Toluene was discovered in the groundwater beneath 105 McDonough Boulevard SE at a maximum concentration of 2,000 ppb, above the MCL of 1,000 ppb and below the EPD-USTMP applicable regulatory threshold of 5,980 ppb.

Ethylbenzene was discovered in the groundwater beneath 105 McDonough Boulevard SE at a maximum concentration of 1,000 ppb (parts per billion or micrograms per liter), above the MCL of 700 ppb and below the EPD-USTMP applicable regulatory threshold of 2,100 ppb. Xylenes were discovered in the groundwater beneath 105 McDonough Boulevard SE and 1326 Jonesboro Road SE at a maximum concentration of 4,500 ppb, below the MCL of 10,000 ppb. Additionally, VOC (volatile organic compound) constituents consisting of: 2-hexanone, 4-methyl-2-pentanone, cyclohexane, isopropylbenzene, and methylcyclohexane were discovered in the groundwater 105 McDonough Boulevard SE. These constituents do not have established regulatory thresholds.

One Group personnel mobilized to the Property on April 6, 2018, and performed a soil and groundwater investigation using the most current version of the USEPA Region 4 Science and Ecosystem Support Division, Field Branches Quality System and Operating Procedures as a general guide. Documentation of the environmental investigation is provided in Appendix C.

#### *1.4.1 Sample Collection*

Four soil borings, SB-1 through SB-4, were performed at 115 McDonough Boulevard SE and 1326 Jonesboro Road SE at various depths ranging from approximately 22 feet BGS to 31 feet BGS (below ground surface). Soil samples were collected from borings SB-1 and SB-2 at depths of five and 12 feet BGS (below ground surface), respectively. These samples were collected based on field observations and knowledge of areas of concern (underground storage tanks and automotive repair). All soil borings were advanced to groundwater with direct-push<sup>TM</sup> technology and solid-stem augers. The boring locations were selected to best represent shallow groundwater quality in areas suspected of impact in areas of concern (on-Property underground storage tanks and off-Property former dry cleaner locations). Groundwater was encountered in all soil borings at depths ranging from 22 to 31 feet BGS. Soil and groundwater samples were collected, field preserved, labeled, placed on ice, and transported to the laboratory under standard Chain of Custody protocols. Soil borings were abandoned with bentonite and their surrounding surface conditions were restored upon sampling completion.

#### *1.4.2 Laboratory Analytical Methods*

The soil and groundwater samples were analyzed for VOCs (volatile organic compounds) using USEPA Method SW8260B to assess for chlorinated solvent and petroleum hydrocarbon impact. Pace (Pace Analytical Services, LLC) performed the analysis at their laboratory in Peachtree Corners, Georgia per NELAC Certification #E87315.

#### *1.4.3 Soil Analytical Results*

VOC constituents were not discovered above laboratory detection limits in any of the analyzed soil samples.

#### *1.4.4 Groundwater Analytical Results*

Tetrachloroethene was discovered in groundwater sample SB-1 at a concentration of 19.9 ppb,



above the MCL of five ppb.

Benzene was discovered in groundwater samples SB-2 and SB-4 at a maximum concentration of 27.9 ppb. These detections are above the MCL of five ppb.

Ethylbenzene was detected in groundwater sample SB-2 at a concentration of 71.4 ppb, below the MCL of 700 ppb. Total xylenes were detected in groundwater sample SB-2 at a concentration of 31.7 ppb, below the MCL of 10,000 ppb. Naphthalene was discovered at a maximum concentration of 121 ppb in groundwater samples SB-2, SB-3, and SB-4. These concentrations are below the MCL of 200 ppb. 1,2-Dichloroethane was discovered in groundwater sample SB-2 at a concentration of 1.7 ppb, below the MCL of five ppb.

Remaining VOC constituents were not discovered above laboratory detection limits in any of the groundwater samples analyzed.

### **1.5 PROPOSED PROPERTY USE**

The prospective purchaser, 105 McDonough Blvd., LLC, plans to operate the Property for non-residential purposes.

## 2.0 PHYSICAL SETTING REVIEW

The Property's physical setting has been reviewed to evaluate the potential for impacted soil or groundwater to migrate onto or near the Property thus creating a *recognized environmental condition*.

### 2.1 TOPOGRAPHY, SURFACE DRAINING, AND FLOOD-ZONE INFORMATION

According to the U.S. Geological Survey topographic map, 7.5-Minute, Southwest Atlanta, Georgia, Quadrangle, dated 2014; the elevation of the Property is approximately 1,030 feet above mean sea level, based on the National Geodetic Vertical Datum of 1929. The Property has a slight downward gradient to the west southwest, toward a tributary of South River.

Drainage for the Property is provided by surface flow. Storm water from the roof discharges directly to the surrounding pavement and landscaping. The storm water throughout the Property is directed off-Property to the west along Jonesboro Road SE.

Flood Zone information for the Property was reviewed online at the FEMA (Federal Emergency Management Agency) website. The FEMA Flood Insurance Rate Map lists the Property in Unshaded Flood Zone X, defined as "areas determined to be outside the 0.2% annual chance floodplain" or "areas determined to be outside the 100- and 500-year floodplain". The FEMA maps do not reflect potential local drainage problems or the ability of the local storm water management system to convey the surface water runoff created by storms or other occurrences.

There were no areas of significant storm water ponding or erosion observed during this assessment; Property drainage appears adequate.

### 2.2 SOIL, GEOLOGY, AND GROUNDWATER

The Property is located in the Piedmont Physiographic Province of North Georgia, which is underlain by a mosaic of rock types that have been metamorphosed under varying degrees of pressure. The regional Piedmont Physiographic Province originates from Alabama, continuing northeastward through Georgia and the Carolinas, comprising a 50 to 150-mile wide complex that extends over 500 miles. The Piedmont Province in Georgia is oriented northeast-southwest and is located southeast of the Appalachian Mountains between the metasedimentary Ridge and Valley and the metamorphic Blue Ridge Provinces to the north, and the sedimentary Upper Coastal Plain Province to the south. Topographically, the Piedmont Province forms the foothills of the Blue Ridge Province containing the Appalachians that have been weathered into gentle, rolling hills and narrow valleys.

Development of crystalline rocks in the Piedmont Province is associated with Paleozoic tectonic events, including the continental collision which formed the Pangean supercontinent and the Appalachian Mountains. Subsequent tectonic and orogenic activity produced folding, faulting, shearing, and cyclic metamorphism that has obscured the exact origin and interrelationships of the highly deformed rocks of the Piedmont Province. Areas of Paleozoic and older rocks of the

Piedmont Province are considered by some to be allochthonous thrust sheets, which initially formed elsewhere. Many of the Piedmont rocks are thought to have originated as marine sediments and volcanic deposits of an island arc that were deeply buried during the Paleozoic orogenic events and may have recrystallized under high pressure.

In certain areas, the crystalline rocks have been sub aerially exposed by millions of years of weathering and erosion. Younger Paleozoic intrusions occur as isolated batholiths within the Piedmont Province including Stone Mountain and Elberton Granite. Numerous Triassic diabase dikes cut through older Piedmont Province rocks and are associated with the rifting of the Pangean supercontinent theorized to produce the Atlantic Ocean basin.

Piedmont Province rocks are frequently overlain by a mantle of deeply weathered, decomposed rock of varying thickness. These residual soils are formed *in situ* by the chemical weathering of the underlying rocks, which causes dissolution of soluble clay minerals, leaving a residual concentration of more insoluble elements. Typically, soil weathering is more advanced at the ground surface and decreases with depth toward the more competent parent bedrock. A typical Piedmont Province weathering profile transitions from clays to sandy silts and/or silty sands to partially weathered rock to competent bedrock. Residual soils, called saprolite, retain the relict structure of the parent rock; however, the compositional nature is altered. Most Piedmont Province surficial soils are weathered to aluminosilicate clays, iron oxides, and quartz and are characteristically red in color at shallow depths due to iron oxidation. Alluvial deposits, fill material, development grading, and/or erosion may alter this naturally-occurring soil weathering profile.

The Property soils are considered urban land. Urban land is defined as areas where 75% or more of the surface is covered with buildings and pavement, or where the native soil has been excavated or mixed with imported soil. Underlying bedrock on the Property is classified as gg4 (granite gneiss/amphibolite) according to the Geologic Map of Georgia (1976, reprinted 1997). Depth to bedrock beneath the Property was encountered at depths ranging from 24 to 25 feet BGS.

Depth to groundwater beneath the Property has been measured between 24 and 31 feet BGS. Surficial, unconfined groundwater is usually less than 50 feet BGS in this area of the Piedmont. Groundwater flow beneath the Property is predominantly controlled by fracture flow in joints and openings of the underlying bedrock and/or pore spaces in the overlying residual soils. Groundwater flow direction generally follows surface topography down gradient. Unconfined, surficial groundwater likely flows west southwest from the Property toward a tributary to South River, approximately 3,845 feet away.

## 2.3 WATER WITHDRAWAL INFORMATION

The Property is located in a lower pollution susceptibility area, as defined by the Groundwater Pollution Susceptibility Map of Georgia, Georgia Geologic Survey Hydrologic Atlas 20.

Metropolitan Atlanta obtains over 99% of its drinking-water supply from surface waters in the Chattahoochee, Coosa, Flint, Ocmulgee, Oconee, and Tallapoosa river basins. Groundwater

sources make up less than one percent of the total water supply for the Metropolitan North Georgia Water District. No drinking-water supplies were identified within a one-mile radius of the Property during this assessment. However, our search was not exhaustive and was limited to a review of public records, applicable U.S. Geologic Survey databases, and available government agencies.

It is unlikely that groundwater withdrawal is the source of drinking water in the immediate vicinity and within a one-mile radius of the Property. Further, the Property is connected to the municipal potable-water supply which is also available to the surrounding area.

### 3.0 SOURCE DESCRIPTION

The following section presents a general summary of soil and groundwater analytical testing performed at the Property, as well as identifying the sources of its pre-existing release.

#### 3.1 SOIL

Regulated materials detected in the Property soil at concentrations exceeding laboratory detection limits include: benzene, toluene, ethyl-benzene, and xylenes.

#### 3.2 GROUNDWATER

Regulated materials detected in the Property groundwater at concentrations exceeding laboratory detection limits include: benzene, ethyl-benzene, toluene, xylenes, 2-hexanone, 4-methyl-2-pentanone, naphthalene, tetrachloroethene/tetrachloroethylene, 1,2-dichloroethane, cyclohexane, isopropylbenzene, and methylcyclohexane.

#### 3.3 RELEASE SOURCE(S)

The sources of the existing release in the Property soil and groundwater are historical on-Property petroleum service stations and an off-Property historical dry cleaners. The petroleum service stations formerly operated on-Property at 105 McDonough Boulevard SE (Tract 1) and 1326 Jonesboro Road (Tract 2). The historical dry cleaners formerly operated off-Property at 1325 and 1327 Jonesboro Road SE.

## 4.0 QUALIFICATIONS

The Brownfield Act, O.C.G.A. Section 12-8-200 et seq., sets forth certain criteria to qualify a potential brownfield acquisition for a Limitation of Liability. Based on the applicable information, One Group has concluded that both the Property and the prospective purchaser meet the Act's requirements as summarized below:

### The Property:

- Has had a pre-existing release;
- Does not have liens filed under subsection (e) of Code Section 12-8-96 against it;
- Is not listed on the Federal National Priority List
- Is not undergoing response activities by an order of the US Environmental Protection Agency;
- Is not a hazardous waste facility as defined in Code Section 12-8-62.

### 105 McDonough Blvd., LLC, the prospective purchaser:

- Is not a person who has contributed or is contributing to a release at the property;
- Is not related to, or is otherwise affiliated with, the current owner of the Property or any person who has contributed or is contributing to a release at the Property;
- Has not found evidence of liens filed under subsection (e) of Code Section 12-8-96 against the property;
- Is not in violation of any order, judgment, statute, rule or regulation subject to the enforcement authority of the director.

Accordingly, the Property and prospective purchaser meet the eligibility criteria.



## 5.0 CORRECTIVE ACTION PLAN

One Group proposes the following items for the Corrective Action Plan:

- The underground storage tanks at 105 McDonough Boulevard SE will be closed by removal in accordance with applicable laws, rules and regulations, specifically published, EPD UST closure guidance. The applicant may determine a "no further action" status issued by EPD UST Management Program will be sufficient to mitigate the petroleum hydrocarbon impact at the Property. However, the applicant reserves the right to this determination until after UST closure activities are completed at the Property.
- Corrective action will be performed on Property soils that exceed the applicable non-residential, Type 3 or 4 SRRS (Soil Risk Reduction Standards.) Such corrective action, if required, will be conducted on any regulated materials that are detected during either the completion of additional Property investigation activities or redevelopment of the Property.
- Corrective action of source material at the Property, if required, will be performed by methods that: (i) prevent contamination of the surrounding environment (soil, water, air), (ii) are in accordance with federal, state, and local laws, and (iii) protect personnel in the excavation area and adjacent areas.
- Corrective action will be performed on any identified Property soil that exceeds applicable SRRS to the limits determined by delineation soil sampling. Soil samples will be taken at intervals determined appropriate and/or in accordance with sound scientific methods. Soil samples will be collected from intervals of 25 linear feet along excavation sidewalls and from intervals of 500 square feet at the vertical excavation limit (bottom).
- In the event soil excavation, transport, and disposal is required at the Property, characterization soil samples of any excavated material will be collected and analyzed by a qualified laboratory in accordance with the selected permitted disposal facility's requirements. Excavated material that requires off-Property disposal will be placed directly into roll-off boxes or onto covered, asphalt pavement with appropriate cover and erosion control. Excavated, impacted soil will be transported in compliance with all applicable regulations for transporting such waste and disposed at a pre-approved disposal facility permitted to accept the designated waste.
- The corrective action extent of impacted soil areas will be confirmed through verification soil sampling at designated intervals along sidewalls and bottoms. Verification soil samples will be analyzed by a qualified laboratory. Verification soil sampling intervals along will be determined using sound scientific methods and, if required, will be submitted to EPD for approval.
- The potential for vapor intrusion will be evaluated as part of the site characterization activities. In the event that the vapor intrusion pathway is found to be complete, mitigation options will be considered and performed on the Property that would be required under

applicable laws, including the Act.

- ACM (Asbestos-containing material) and LBP (lead-based paint), if present, will be managed appropriately at the Property. All renovation and/or demolition plans for the property will include measures for the proper identification, removal, management, and disposal of ACMs and LBP in accordance with §391-3-24 of the Georgia Rules for Lead-based Paint Hazard Management and §391-3-14 of the Georgia Rules for Asbestos Removal and Encapsulation. The proper removal of ACM and LBP from these buildings prior to renovation and/or demolition is necessary to protect human health and the environment from potentially substantial amounts of hazardous substances that would otherwise be emitted directly into the air during renovation and/or demolition activities. Corrective action, if required, will be performed in compliance with applicable Occupational, Safety and Health Act regulations, and in accordance with a project specific Health, Safety, and Emergency Response Plan.

Should alternative SRRS or remedial methods be sought, an amendment or addendum to this Corrective Action Plan will be submitted to EPD for approval.



## 6.0 COMPLIANCE STATUS REPORT

The applicant, 105 McDonough Blvd., LLC, will submit a CSR (Compliance Status Report), certifying compliance of Property soil with applicable SRRS, upon completion of additional investigation activities. The written report will be submitted in accordance with applicable EPD requirements and consist of information in the format required for submission to the EPD.

The CSR will include, but is not limited to, the following items:

- Legal description and survey/plat of the Property which comprises the Brownfield Property;
- Description of each known release source;
- Summary of actions taken to eliminate, control, or minimize the potential risk at the Property;
- Description of geologic and hydrogeologic conditions at the Property;
- Summary of all pertinent field measurements and final laboratory analytical data complete with a chain of custody;
- Definition of the horizontal and vertical extent of on-Property soil and groundwater contamination;
- A description of existing or potential human or environmental receptors.
- Description of corrective action used to bring the Property into compliance with the risk reduction standards;
- Documentation of the proper characterization, transport, and disposal of contaminated soils and/or hazardous wastes (if any);
- A concise statement of the Report findings including a certification of compliance with the appropriate SRRS;
- Signature and seal of a Georgia Registered Professional Geologist and/or Engineer.

The CSR submittal is anticipated on or about January 1, 2022.

## 7.0 CERTIFICATION STATEMENT

I certify that this report and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly evaluated the information submitted. Based on my inquiry of the person or persons who prepared the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.



Robert Brawner, CHMM #13495  
One Consulting Group, Inc.

June 26, 2018

Date



Robert A. White, P.G.  
One Consulting Group, Inc.

June 26, 2018

Date



**APPENDIX A**  
**LEGAL DESCRIPTIONS**

EXHIBIT "A"

Parcel 1

SURVEY LEGAL DESCRIPTION  
(105 McDonough Boulevard)

ALL THAT TRACT OR PARCEL OF LAND, lying and being in Land Lot 56, 14<sup>th</sup> District, Fulton County, Georgia as shown on that survey plat prepared for 105 McDonough Blvd., LLC, prepared by Georgia Land Surveying Co., certified by Josh L. Lewis, IV, Georgia Registers Land Surveyor No. 3028, dated March 20, 2018, last revised May 29, 2018, being more particularly described as follows:

TO FIND THE TRUE POINT OF BEGINNING, COMMENCE at the intersection of the southwestern right-of-way of McDonough Boulevard (Georgia Route 42) (variable width right-of-way) and the eastern right-of-way of Jonesboro Road (Georgia Route 54) (variable width right-of-way), if said rights-of-way were extended to form a point instead of a curve, thence South 14 degrees 18 minutes 10 seconds East a distance of 20.70 feet to a point on right-of-way of said Jonesboro Road said point being the TRUE POINT OF BEGINNING,

FROM SAID TRUE POINT OF BEGINNING, thence in a northeasterly direction along the curvature of the intersection of said McDonough Boulevard and said Jonesboro Road, along the arc of a curve to the right an arc distance of 12.00 feet (said arc having a chord bearing of North 52 degrees 04 minutes 37 seconds East, a chord length of 11.29 feet and a radius of 10.00 feet ) to a point on the right-of-way of said McDonough Boulevard; thence South 47 degrees 36 minutes 13 seconds East along the southwestern right-of-way of said McDonough Boulevard, a distance of 150.79 feet to a one-half inch rebar set at the intersection of the southwestern right-of-way of said McDonough Boulevard and the northwestern right of way of Martin Street (thirty foot right-of-way); thence South 69 degrees 09 minutes 35 seconds West along the northwestern right-of-way of said Martin Street, a distance of 96.60 feet to a four inch pipe found at the intersection of the northwestern right-of-way of said Martin Street and the eastern right-of-way of said Jonesboro Road; thence North 14 degrees 18 minutes 10 seconds West along the eastern right-of-way of said Jonesboro Road, a distance of 136.40 feet to a point at the beginning of the curvature of the intersection of said McDonough Boulevard and said Jonesboro Road, said point being the TRUE POINT OF BEGINNING; said parcel containing 0.171 acres, more or less, being known as 105 McDonough Boulevard according to the current system of numbering property in the City of Atlanta, Georgia and also identified a Tax Parcel No. 14-0056-0005-062-1 according to the current Fulton County Tax Assessor's records.

Parcel 2

SURVEY LEGAL DESCRIPTION  
(1326 Jonesboro Road)

ALL THAT TRACT OR PARCEL OF LAND, lying and being in Land Lot 56, 14<sup>th</sup> District, Fulton County, Georgia as shown on that survey plat prepared for 105 McDonough Blvd., LLC, prepared by Georgia Land Surveying Co., certified by Josh L. Lewis, IV, Georgia Registers Land Surveyor No. 3028, dated March 20, 2018, last revised May 29, 2018, being more particularly described as follows:

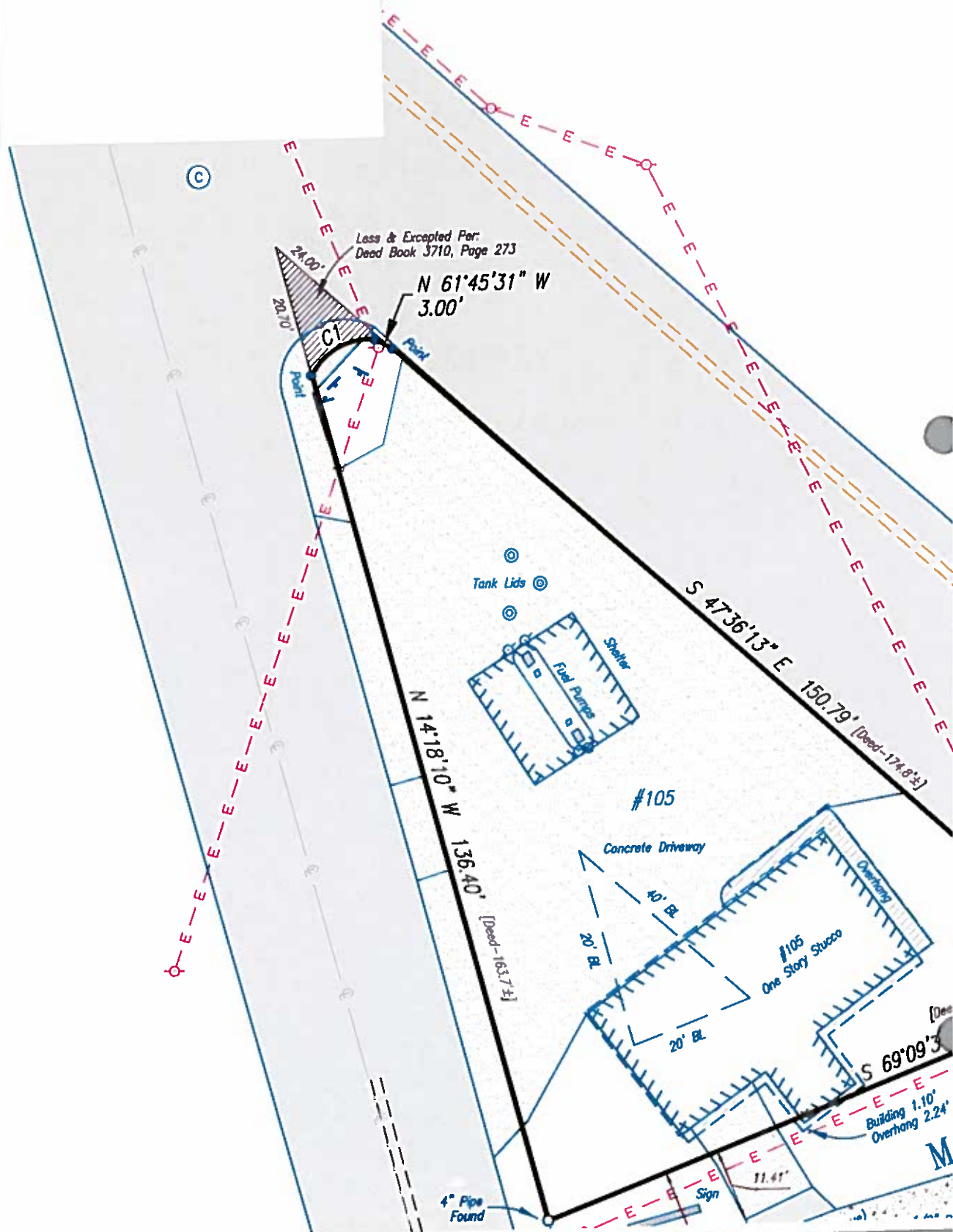
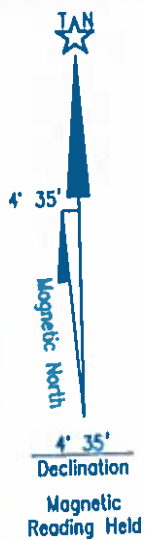
TO FIND THE TRUE POINT OF BEGINNING, COMMENCE at the intersection of the southwestern right-of-way of McDonough Boulevard (Georgia Route 42) (variable width right-of-way) and the eastern right-of-way of Jonesboro Road (Georgia Route 54) (variable width right-of-way), if said rights-of-way were extended to form a point instead of a curve, thence South 14 degrees 18 minutes 10 seconds East a distance of 20.70 feet to a point on right-of-way of said Jonesboro Road; thence South 14 degrees 18 minutes 10 seconds East along the eastern right-of-way of said Jonesboro Road, a distance of 136.40 feet to a four inch pipe found at the intersection of the eastern right-of-way of said Jonesboro Road and the northwestern right-of-way of Martin Street (thirty foot right-of-way); thence South 14 degrees 23 minutes 21 seconds East along the line common to the eastern right-of-way of said Jonesboro Road and the westernmost boundary of said Martin Street, a distance of 30.50 feet to a one-half inch rebar set at the intersection of the eastern right-of-way of said Jonesboro Road and the southeastern right-of-way of said Martin Street, said point being the TRUE POINT OF BEGINNING;

FROM SAID TRUE POINT OF BEGINNING, thence North 69 degrees 09 minutes 35 seconds East along the southeastern right-of-way of said Martin Street, a distance of 63.26 feet to a one-half inch rebar set; leaving said right-of-way, thence South 27 degrees 35 minutes 41 seconds East, a distance of 89.93 feet to a one-half inch rebar set; thence South 68 degrees 45 minutes 30 seconds West, a distance of 84.11 feet to a one-half inch rebar found on the eastern right-of-way of said Jonesboro Road; thence North 14 degrees 19 minutes 30 seconds West along the eastern right-of-way of said Jonesboro Road, a distance of 90.45 feet to a one-half inch rebar set at the intersection of the intersection of the eastern right-of-way of said Jonesboro Road and the southeastern right-of-way of said McDonough Boulevard Street, said point being the TRUE POINT OF BEGINNING; said parcel containing 0.152 acres, more or less, being known as 1326 Jonesboro Road according to the current system of numbering property in the City of Atlanta, Georgia and also identified a Tax Parcel No. 14-0056-0008-034-5 according to the current Fulton County Tax Assessor's records.

whdii  
5/30/2018.v.3

**APPENDIX B**

**SURVEY AND PLAT**



## **APPENDIX C**

### **SOIL AND GROUNDWATER INVESTIGATION**



Thursday, June 14, 2018

105 McDonough Blvd., LLC  
P.O. Box 17682  
Atlanta, Georgia 30316

Attention: **John Chambliss**

Subject: **Modified Phase II Subsurface Investigation  
Commercial Properties  
1326 Jonesboro Road SE, 0 McDonough Boulevard SE, and 105 McDonough  
Boulevard SE  
Atlanta, Fulton County, Georgia 30315  
One Group Project #A18023.02**

Mr. Chambliss:

One Group (One Consulting Group, Inc.) is pleased to provide this report of the Modified Phase II Subsurface Investigation performed for the above-referenced property, hereafter referred to as the "Site." This scope of work was performed in accordance with our executed proposal #A18023.02, dated March 27, 2018, using the American Society for Testing and Materials "Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process," Designation: E 1903-97 (2002) as a guide. The Site location is presented on Figure 1 of Appendix I.

## **BACKGROUND**

105 McDonough Blvd., LLC, is performing due-diligence activities at the Site in preparation for subsequent purchase. The Site is composed of three parcels totaling approximately 0.4 acres. The property located at 105 McDonough Boulevard SE is an approximately 0.17-acre commercial parcel developed with a vacant petroleum service station. Parcel improvements consist of an approximate 1,175 square-foot building, a petroleum product dispenser island, two petroleum product dispensers, and a dispenser island canopy. The property located at 0 McDonough Boulevard SE is approximately 0.06 acres and contains a pole-mounted, billboard sign. The 1326 Jonesboro Road SE property is approximately 0.15 acres and does not contain any structural improvements. The 0 McDonough Boulevard SE and 1326 Jonesboro Road SE properties historically operated as various petroleum service stations and a lounge/bar from at least 1935 to 1970.

LOGIC (Logic Environmental, Inc.) performed subsurface soil and groundwater testing that was presented in a Phase II Soil and Groundwater Assessment for the Site dated June 30, 2017. Testing was performed as part of due-diligence activities to assess for potential petroleum product impact to the Site subsurface as a result of the historical uses of 105 McDonough Boulevard SE and 1326 Jonesboro Road SE as petroleum service stations. Laboratory analytical results discovered

petroleum product impact in the soil and groundwater of 105 McDonough Boulevard SE and groundwater of 1326 Jonesboro Road SE. Benzene was discovered in the soil at a maximum concentration of at 0.099 ppm (parts per million or milligrams per kilogram), above the MCL (maximum contaminant level) of 0.020 ppm. However, this concentration was below the EPD (Georgia Environmental Protection Division)-USTMP (Underground Storage Tank Management Program) applicable regulatory threshold of 11.30 ppm. The remaining analyzed constituents in soil were not detected above their respective regulatory threshold levels or were below laboratory detection limits. Benzene was discovered in the groundwater at a maximum concentration of 1,800 ppb (parts per billion or micrograms per liter), above the MCL of 5 ppb and above the EPD-USTMP applicable regulatory threshold of 51 ppb. Ethylbenzene was discovered in the Site groundwater at a maximum concentration of 1,000 ppb, above the MCL of 700 ppb. However, it was below the EPD-USTMP applicable regulatory threshold of 2,100 ppb. Xylenes were discovered in the Site groundwater at a maximum concentration of 4,500 ppb, below the MCL of 10,000 ppb. Additionally, VOC (volatile organic compound) constituents consisting of: 2-hexanone, 4-methyl-2-pentanone, cyclohexane, isopropylbenzene, and methylcyclohexane were discovered in the Site groundwater. These constituents do not have an established regulatory threshold. LOGIC's analytical results have been incorporated into Figures 3 and 4 of Appendix I; summarized in Tables 1 and 2 of Appendix II; and provided in their entirety in Appendix IV.

The following RECs (recognized environmental conditions) were identified associated with the Site during an ESA (Environmental Site Assessment):

- The Site parcel at 105 McDonough Blvd. SE operated as a petroleum service station from at least 1958 to 2008. The UST (underground storage tank) system is in-place and considered "temporarily closed" by EPD-USTMP. Furthermore, previous subsurface testing identified petroleum product impact to the soil and groundwater. As the UST system has not been closed per regulatory guidelines and a petroleum product release has impacted the soil and groundwater, this facility is considered a REC.
- The Site parcel at 1320/1326 Jonesboro Rd. SE operated as various petroleum service stations from at least 1940 to 1970. Furthermore, a petroleum service station listed at 115 McDonough Boulevard SE operated from at least 1935 to 1938, and was associated with 1326 Jonesboro Road SE. Limited soil and groundwater sampling previously performed discovered minimal petroleum product constituents in the soil. Therefore, it is considered an REC requiring further assessment.
- American Cleaning Center located at 1325 Jonesboro Road SE operated as a dry-cleaning facility approximately 40 feet west of the Site from at least 1990 to 1995. This former facility has the potential to impact the Site with chlorinated solvents. Therefore, it is considered an REC requiring further assessment.
- Artistic Dry Cleaners B located at 1327 Jonesboro Road SE operated as a dry-cleaning facility approximately 40 west of the Site from at least 1945 to 1975. This former facility has the potential to impact the Site with chlorinated solvents. Therefore, it is considered an REC requiring further assessment.

One Group performed a Modified Phase II Subsurface Investigation to evaluate the Site subsurface for potential impact from on-Site and off-Site sources.

A Site Plan is provided on Figure 2 of Appendix I.

## POTENTIAL RECEPTOR SURVEY

The Site is located in a lower pollution susceptibility area, as defined by the Groundwater Pollution Susceptibility Map of Georgia, Georgia Geologic Survey Hydrologic Atlas 20.

### *Surface Water Bodies*

According to the USGS (US Geological Survey) Topographic map, 7.5-Minute, Southwest Atlanta, Georgia Quadrangle dated 2014: The closest surface water feature is a tributary to the South River, approximately 3,845 feet west southwest of the Site. The topographic map is presented as Figure 1 of Appendix I.

### *Drinking Water Receptors*

Based on a review of available USGS water well records and a driving reconnaissance of the area surrounding the Site, active drinking water supplies were not identified within a one-mile radius. A copy of the drinking water receptor survey is included in Appendix III.

## GOVERNANCE

Reportable limits for regulated contaminant concentrations in the Site subsurface are defined by EPD Rules: "Water Quality Control," Chapter 391-3-6 (authorized by OCGA 12-5-20 & 12-5-520); "Hazardous Site Response," Chapter 391-3-19 (authorized by OCGA 12-8-60, 12-8-90, & 12-8-200); and "Underground Storage Tank Management," Chapter 391-3-15 (authorized by OCGA 12-31-1).

## SUBSURFACE INVESTIGATION

One Group personnel mobilized to the Site on April 6, 2018. This investigation was performed using the most current version of the USEPA Region 4 Science and Ecosystem Support Division, Field Branches Quality System and Operating Procedures as a general guide.

### *Soil*

Four soil borings, SB-1 through SB-4, were performed on the 1326 Jonesboro Rd. SE and 0 McDonough Blvd. SE Site parcels. Discrete soil samples were collected from soil borings SB-1 and SB-2 using direct-push™ technology.

## *Groundwater*

All soil borings were advanced to groundwater using direct-push™ technology and solid-stem augers. The soil boring locations were selected to best represent shallow groundwater quality in areas suspected of impact from the documented RECs. Bedrock was encountered in soil borings SB-1 and SB-4 at depths ranging from 24 to 25 feet respectively.

Groundwater was encountered in all four soil borings at depths ranging from 24 to 31 feet BGS. Groundwater samples were collected from the soil borings using disposable, Teflon™ tubing and a peristaltic pump within a five-foot length of stainless-steel, slotted screen. The groundwater samples were field preserved, labeled, placed on ice, and transported to the laboratory under standard Chain of Custody protocols. Soil borings were abandoned with bentonite and the surrounding surface conditions were restored upon sampling completion.

The soil boring locations are presented on Figure 2 of Appendix I.

## **ANALYTICAL METHODS**

The soil and groundwater samples collected by One Group were analyzed for VOCs (volatile organic compounds) using USEPA Method SW8260B to assess for dry-cleaning solvent and petroleum hydrocarbon impact. Pace (Pace Analytical Services, LLC) performed the analysis at their laboratory in Peachtree Corners, Georgia per NELAC Certification #E87315.

## **ANALYTICAL RESULTS**

### *Soil*

VOC constituents were not discovered above laboratory detection limits in any of the analyzed soil samples.

The soil analytical reports are depicted on Figure 3 of Appendix I; summarized on Table 1 of Appendix II; and provided in their entirety in Appendix IV.

### *Groundwater*

Tetrachloroethene was discovered in groundwater sample SB-1 at a concentration of 19.9 ppb, above the applicable reporting threshold of five ppb.

Benzene was discovered in groundwater samples SB-2 and SB-4 at a maximum concentration of 27.9 ppb. These detections are above the applicable reporting threshold of five ppb.

Ethylbenzene was detected in groundwater sample SB-2 at a concentration of 71.4 ppb, below the applicable reporting threshold of 700 ppb. Total xylenes were detected in groundwater sample

SB-2 at a concentration of 31.7 ppb, below the applicable reporting threshold of 10,000 ppb. Naphthalene was discovered at a maximum concentration of 121 ppb in groundwater samples SB-2, SB-3, and SB-4. These concentrations are below the applicable reporting threshold of 200 ppb. 1,2-Dichloroethane was discovered in groundwater sample SB-2 at a concentration of 1.7 ppb, below the applicable reporting threshold of five ppb.

Remaining VOC constituents were not discovered above laboratory detection limits in any of the groundwater samples analyzed.

The groundwater analytical reports are depicted on Figure 4 of Appendix I, summarized on Table 2 of Appendix II, and provided in their entirety in Appendix IV.

## CONCLUSIONS

Based on the laboratory analytical results, the following are the project conclusions:

- Drinking water supplies were not identified within a one-mile radius of the Site.
- Surface water bodies were not identified within a 500-foot radius of the Site.
- A reportable release of benzene was previously discovered in the Site soil.
- A reportable release of tetrachloroethene and benzene were discovered in the Site groundwater.
- Based on depth to groundwater (greater than 20 feet BGS) and the VOC concentrations detected, a vapor intrusion condition is unlikely to exist beneath the Site and is considered a *low environmental concern*.

## RECOMMENDATIONS

The Site owner is required by law to report the detected concentrations of tetrachloroethene, and previously detected 2-Hexanone, 4-Methyl-2-Pentanone, Cyclohexane, Isopropylbenzene, and Methylcyclohexane in the Site groundwater to the EPD's Response and Remediation Program in a properly certified Initial Release Notification.

The Site owner should report the benzene, toluene, ethyl-benzene, and total xylenes in the Site soil and groundwater to EPD-USTMP to satisfy reporting requirements per published regulations.

Should the petroleum service station become permanently closed, the UST system must be properly closed in accordance with applicable, laws, rules and regulations, specifically published, EPD UST Closure Guidance.

A copy of the required groundwater professional certification is provided in Appendix V.

## CLOSURE

Thank you for the opportunity to be of service on this project. If you have any further questions, please feel free to call.

Sincerely,

**ONE CONSULTING GROUP, INC.**



Ryan Williams  
Project Manager



Robert White  
Reviewer/Professional Geologist



### Attachments

Appendix I  
Appendix II  
Appendix III  
Appendix IV  
Appendix V  
Appendix VI

Figures  
Tables  
Potential Receptor Survey  
Soil Boring Logs  
Laboratory Analytical Reports  
Groundwater Professional Certification

## **APPENDIX I**

### **FIGURES**







Figure 2  
Site Plan



Commercial Properties  
1326 Jonesboro Rd. SE, 0 McDonough Blvd. SE, & 105 McDonough Blvd. SE  
Atlanta, Fulton County, GA 30315  
One Group Project #: A18023.02  
Source: Georgia Land Surveying Co., Logic Environmental, Inc., and field notes

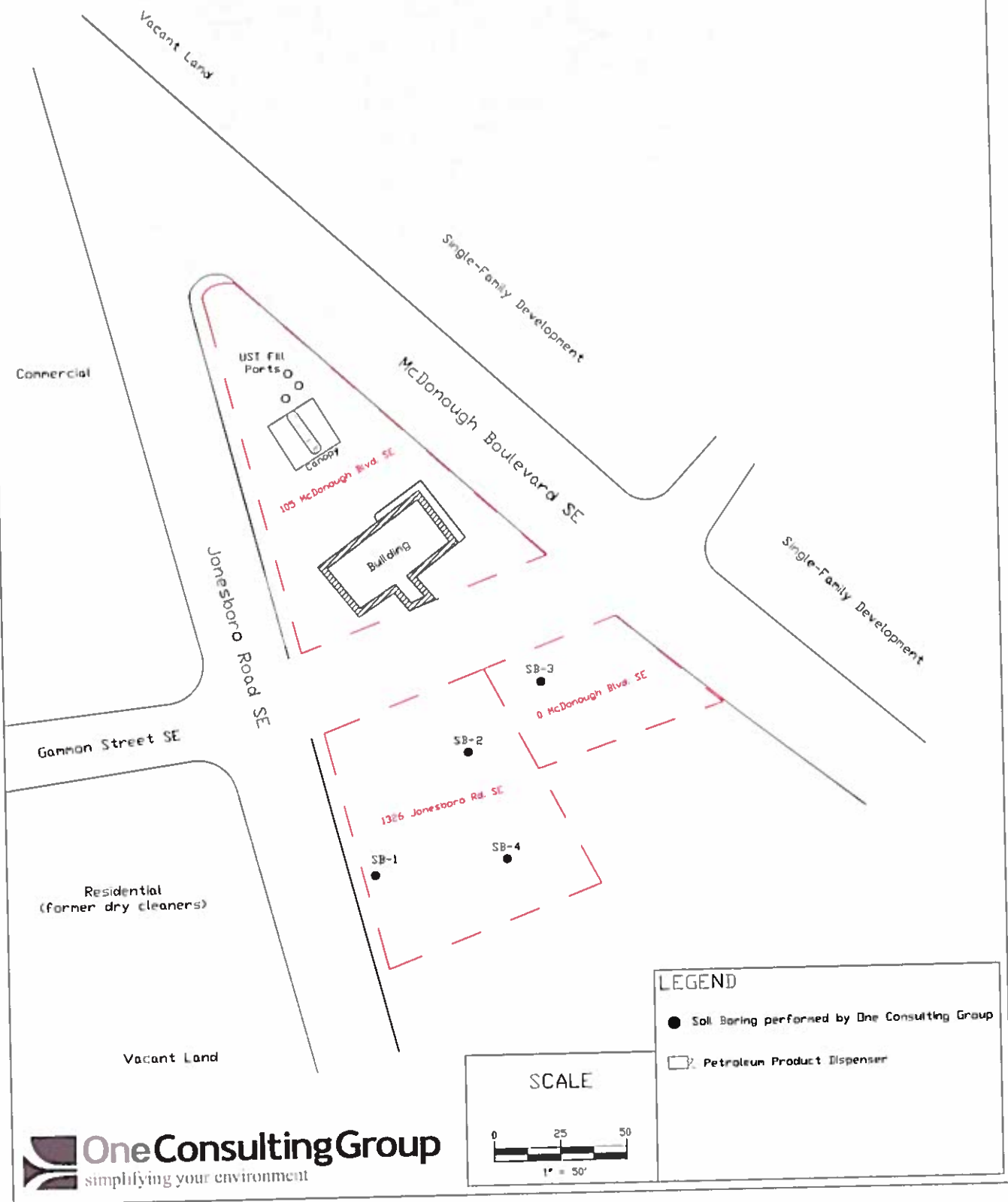


Figure 3

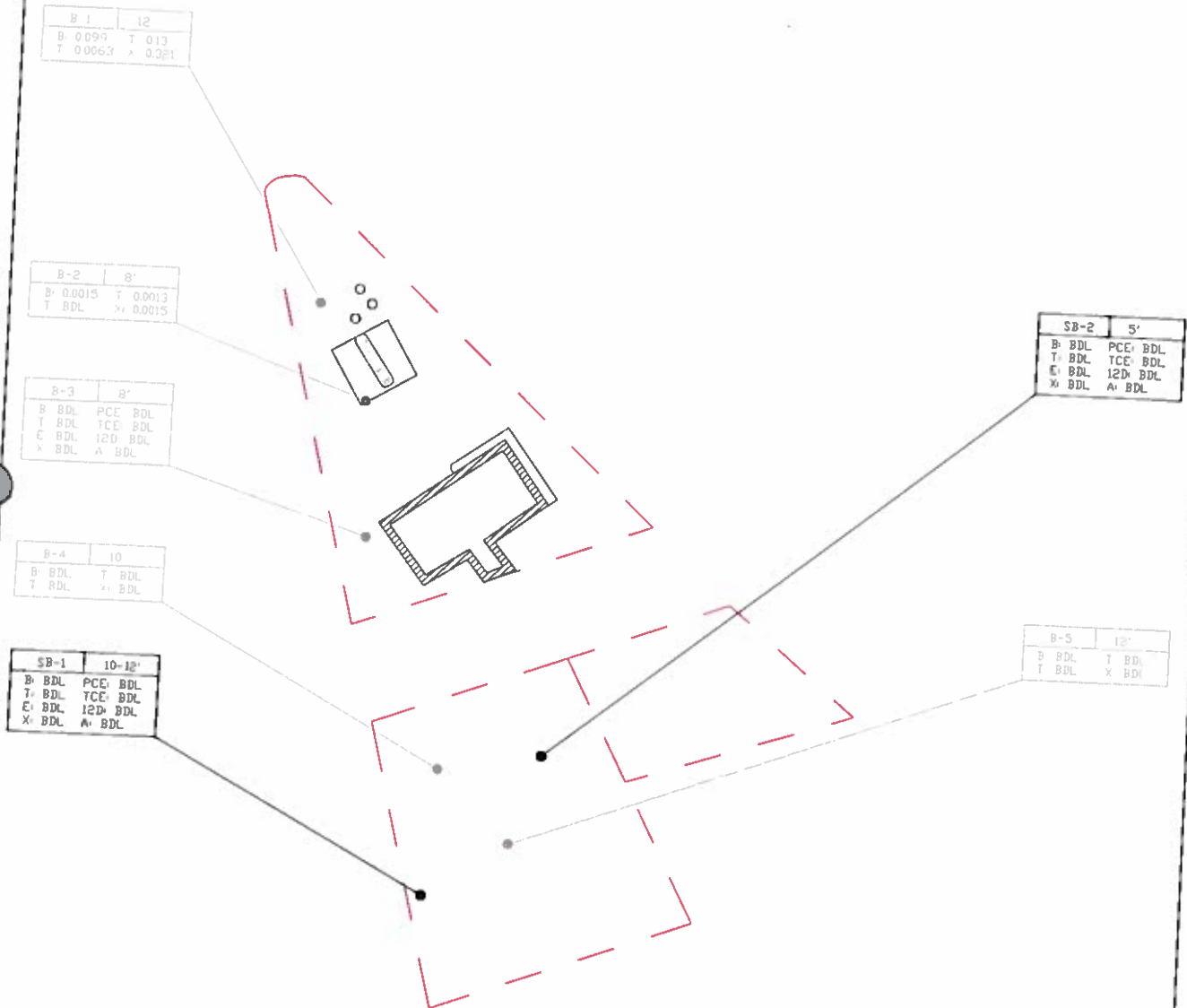
# Soil Quality 4/6/2018 - Volatile Organic Organic Compounds

Commercial Properties

1326 Jonesboro Rd. SE, 0 McDonough Blvd. SE, & 105 McDonough Blvd. SE  
Atlanta, Fulton County, GA 30315

One Group Project #: A18023.02

Source: Georgia Land Surveying Co., Logic Environmental, Inc., and field notes



## LEGEND

- Soil Boring performed by One Consulting Group
- Soil Boring performed by Logic Environmental on June 23, 2017

B: Benzene PCE: Tetrachloroethylene  
T: Toluene TCE: Trichloroethylene  
E: Ethylbenzene 12D: 1,2-Dichloroethane  
X: Xylenes A: Acetone

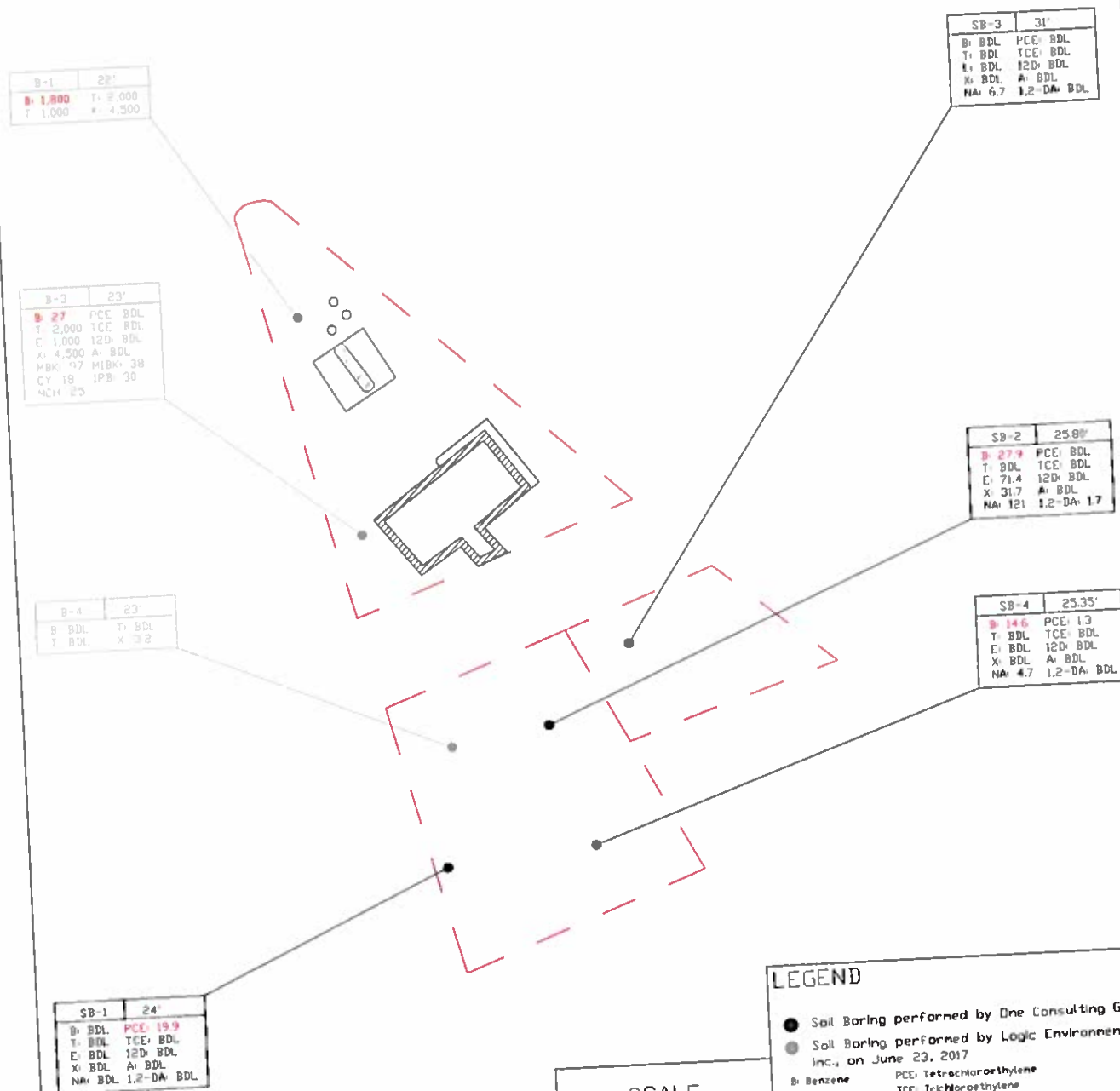
Soil results are in parts per million (mg/kg)  
BDL: Below detection limits

## SCALE



# Figure 4 Groundwater Quality 4/6/2018 - Volatile Organic Organic Compounds

Commercial Properties  
1326 Jonesboro Rd. SE, 0 McDonough Blvd. SE, & 105 McDonough Blvd. SE  
Atlanta, Fulton County, GA 30315  
One Group Project #: A18023.02  
Source: Georgia Land Surveying Co., Logic Environmental, Inc., and field notes



## LEGEND

- Soil Boring performed by One Consulting Group
  - Soil Boring performed by Logic Environmental Inc. on June 23, 2017
- B: Benzene  
T: Toluene  
E: Ethyl-benzene  
X: Xylenes  
NA: Naphthalene  
MBK: 2-Hexanone  
CY: Cyclohexane  
BDL: Below detection limits
- PCE: Tetrachloroethylene  
TCE: Trichloroethylene  
1,2-D: 1,2-Dichloroethane  
A: Acetone  
1,2-DA: 1,2-Dichloropropane  
MBK: 4-Methyl-2-Pentanone  
IPB: Isopropylbenzene
- Groundwater results are in parts per billion (ug/L)

## SCALE



**One Consulting Group**  
simplifying your environment

## **APPENDIX II**

### **TABLES**

Commercial Properties  
 1326 Jonesboro Road SE, 0 McDonough Boulevard SE, and 105 McDonough Boulevard SE  
 Atlanta, Fulton County, Georgia 30315  
 One Group Project #A18023.02

**TABLE 1: SOIL QUALITY**  
 Volatile Organic Compounds (USEPA Method 8260B)

Concentrations in parts per million (mg/Kg)														
	Ethyl-Benzene	Xylenes	Methyl Tert-Butyl Ether (MTBE)	Acetone	2-Butanone (MEK)	2-Hexanone (MBK)	4-Methyl-2-Pentanone (MIBK)	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Vinyl Chloride	Total VOCs
0047	<0.0047	<0.0094	<0.0047	<0.0935	<0.0935	<0.0468	<0.0468	<0.0047	<0.0047	<0.0047	<0.0047	<0.0187	<0.094	0
0055	<0.0055	<0.0110	<0.0055	<0.110	<0.110	<0.0549	<0.0549	<0.0055	<0.0055	<0.0055	<0.0055	<0.022	<0.011	0
0063	0.13	0.321	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.5563
0079	0.0013	0.0015	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0
0044	<0.0044	<0.0044	<0.0044	<0.088	<0.044	<0.0088	<0.0088	<0.0044	<0.0044	<0.0044	<0.0044	<0.018	<0.0088	0
0091	<0.00091	<0.00091	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0
0089	<0.00089	<0.00089	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0
1.4	20.0	20.0	NA	0.53	0.79	NA	3.30	0.18	0.130	0.53	0.53	0.08	0.04	NA

action limits, NT = not tested

Commercial Properties

1326 Jonesboro Road SE, 0 McDonough Boulevard SE, and 105 McDonough Boulevard SE  
Atlanta, Fulton County, Georgia 30315  
One Group Project #A18023.02

**TABLE 2: GROUNDWATER QUALITY**  
Volatile Organic Compounds (USEPA Method 8260)

Concentrations in parts per billion (ug/L)													
Xylenes (total)	Methyl Tert-Butyl Ether (MTBE)	Acetone	2-Butanone (MEK)	2-Hexanone (MBK)	4-Methyl-2-Pentanone (MIBK)	Naphthalene	Tetrachloroethene	Trichloroethene	1,2-Dichloroethane	Cyclohexane	Isopropylbenzene	Methylcyclohexane	cis-1,2-Dichloroethene
<2.0	<10.0	<25.0	<5.0	<5.0	<5.0	<1.0	19.9	<1.0	<1.0	NT	NT	NT	<1.0
31.7	<10.0	<25.0	<5.0	<5.0	<5.0	121	<1.0	<1.0	1.7	NT	NT	NT	<1.0
<2.0	<10.0	<25.0	<5.0	<5.0	<5.0	6.7	<1.0	<1.0	<1.0	NT	NT	NT	<1.0
<2.0	<10.0	<25.0	<5.0	<5.0	<5.0	4.7	1.3	<1.0	<1.0	NT	NT	NT	<1.0
4,500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<1.0
3,500	<5.0	<5.0	<5.0	97	38	NT	<5.0	<5.0	<5.0	18	30	25	<5.0
3.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
10,000	N/A	4,000	NA	NA	NA	200	5	5	5	N/A	N/A	N/A	70
													70
													5
													2
Total VOCs													
19.9													<1.0
253.7													<1.0
7													<1.0
20.6													<1.0
9,300													NT
4,445													<2.0
3													NT
NA													2

NT = not tested

**APPENDIX III**  
**POTENTIAL RECEPTOR SURVEY**

## Local Water Resource Survey

Address: 1326 Jonesboro Rd. SE, 0 McDonough Blvd. SE, and 105 McDonough Blvd. SE,  
Atlanta, Fulton County, Georgia 30315  
One Group Project #A18023.02

Longitude: 84°23'05"

Latitude: 33°43'07"

### *Groundwater Pollution Susceptibility*

*(Ground-Water Pollution Susceptibility Map of Georgia, 1992)*

- ☐ High/Average (1/2 mile private, 2 mile public)
- ☒ Lower (1/4 mile private, 1 mile public)

### *Surface Waters*

Nearest surface water body is: **unnamed tributary of South River**

Nearest down-gradient surface water: **unnamed tributary of South River**

Distance to the nearest down-gradient surface water body is: **1,030 feet.**

### *Drinking Water Receptors*

- ☒ No drinking water supplies resources were discovered within the specified radii.  
OR
- ☐ Drinking water supplies were discovered within specified radii:

### *Methodology*

*The possible presence of local water resources on the Site and surrounding area was investigated by any or all of the following means:*

- Review of USGS topographic map (SW Atlanta, Georgia dated 2014);
- Drive-by reconnaissance of the surrounding area for the specified radii;
- Conversations with county and/or city officials;
- Conversations with local residents;
- A USGS well survey for the specified radii;
- Review of Georgia Environmental Protection Division project files;
- State water resources lists of public water supplies;
- Communications with local health department and review of water well files
- Communications with local water department and review of water well files



# USGS Well Search

Site Latitude 334307  
 Site Longitude 842305

County	Local Well #	Well Identifier	Latitude	Longitude	Horizontal Datum	Altitude	Vertical Datum	Depth of Well	Depth of Casing	Diameter	Casing Material	Top of open interval	Bottom of open interval	Type of Opening	Date of Construction	Discharge	Well Type	Approx. Distance from site (feet)
121	10FF18	HOLLAND SPRING	335336	842351	NAD27	950	NGVD29	225	38	6	S	38	225	X	1977	37	U	7606
89	11FF01	MORRISONS FLWR FARM	335245	842036	NAD27	1010	NGVD29	285	18	6	S	18	285	X	1965	37	H	11049
121	10EE31	WILLIAM L. GUNTER	335120	842418	NAD27	850	NGVD29	285	18	6	S	18	285	X	1965	37	H	11049
121	10FF11	UNNAMED SPRING/SEEP	335454	842342	NAD27	1010	NGVD29	465	14	6	P	14	465	X	1990	300	I	16567
89	11FF13	PEACHTREE GOLF COURSE 4	335255	841926	NAD27	955	NGVD29	605	20	6	P	20	605	X	1990	75	I	16614
89	11FF10	PEACHTREE GOLF COURSE 1	335306	841934	NAD27	941	NGVD29	605	20	6	P	20	605	X	1990	75	I	16614
121	10FF07	SANDY SPRINGS SPRING	335319	842300	NAD27	1055	NGVD29	365	18	6	P	18	365	X	1990	400	I	16901
89	11FF11	PEACHTREE GOLF COURSE 2	335300	841926	NAD27	940	NGVD29	365	18	6	P	18	365	X	1990	400	I	16928
121	11FF20	ELGIN PRICE	335522	842300	NAD27	1055	NGVD29	25									U	17079
89	11FF12	PEACHTREE GOLF COURSE 3	335201	842813	NAD27	965	NGVD29	351	15	6	P	15	351	X	1990	1	U	17550
121	10EE40	CLEVELAND SPRING	335413	841946	NAD27	930	NGVD29	125	30	6	S	30	125	X	1970	25	R	18674
89	11FF02	JOHN D ARNOT	335340	842621	NAD27	850	NGVD29	125	30	6	S	30	125	X	1970	25	R	18674
121	10FF10	NATIONAL PARK SERVICE SP1	335340	842632	NAD27	850	NGVD29	125	30	6	S	30	125	X	1970	25	R	18674
121	10FF08	NATNL PARK SERVICE SPNG 2	335340	842632	NAD27	850	NGVD29	125	30	6	S	30	125	X	1970	25	R	18674
121	11FF18	MARIA WELL FNSS13	335559	842114	NAD27	1095	NGVD29	39.58		1.6	P					1.3	U	20121
67	10FF03	J D SMITH	335328	842644	NAD27	950	NGVD29	90	70	6	S	70	95	X	1967	42	R	20750
67	10FF02	RIVERBEND APTS	335348	842642	NAD27	790	NGVD29	95	70	6	S	70	95	X	1967	42	R	20750
121	10FF20	THE RIVERSIDE CLUB INC.	335554	842451	NAD27	830	NGVD29	19	9	4	P	9	19	P	1994		U	21341
121	11EE17	BP GAS STN CHESHIRE BRDG	334905	842107	NAD27	855	NGVD29	19	9	4	P	9	19	P	1994		U	21421
89	11EE10	PIKE NURSERIES, INC.	335131	841836	NAD27	930	NGVD29										I	22094
89	11FF17	JABALEY SPRING	335355	841833	NAD27	990	NGVD29										U	22341
121	10EE30	W. R. COX	335030	842635	NAD27	800	NGVD29	480	74	6	S	74	480	X	1968	25	H	23105
89	11EE09	SOUTHERN BELL (SB-2)	334939	841956	NAD27	895	NGVD29	505	70	6.12	P	70	505	X	1991	22	C	23500
89	11EE08	COMMERCIAL PROPERTIES	335043	841850	NAD27	850	NGVD29	260	28	6	S	28	260	X	1970	100	A	23575
89	11FF14	CENTERS FOR DISEASE CNTRL	335252	841747	NAD27	955	NGVD29	24	16	2	P	16	24	S		0.5	U	25617
121	10EE29	RICHARD L AECK	335028	842734	NAD27	850	NGVD29	430	50	6	S	50	430	X	1972	100	H	27498
89	11FF03	ZAYRE-WELL DESTROYED	335320	841714	NAD27	995	NGVD29	375	53	6	S	53	375	X	1954	165	U	27696
121	10EE22	BOB KNIGHT	334811	842504	NAD27	910	NGVD29	166	127	6	S	127	166	X	1973	150	H	28724

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Permeability Rate (in/hr)	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

### OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: No Other Soil Types

Surficial Soil Types: No Other Soil Types

Shallow Soil Types: sandy clay

Deeper Soil Types: No Other Soil Types

### LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

### WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

### FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A2	USGS40000264675	1/4 - 1/2 Mile North
B9	USGS40000264656	1/2 - 1 Mile West

### FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

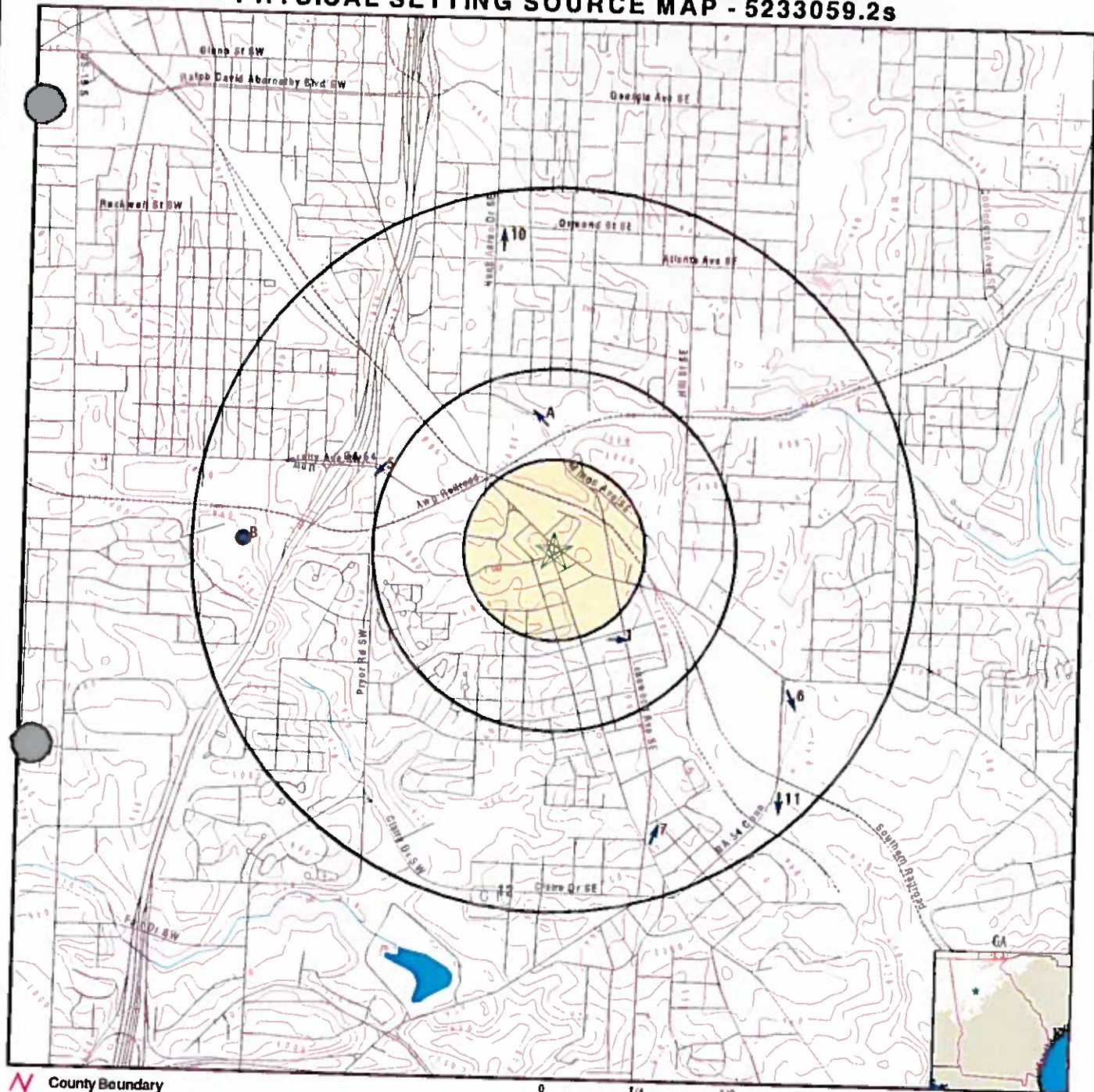
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

### STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	0000004619	1/4 - 1/2 Mile North
B8	0000004616	1/2 - 1 Mile West

# PHYSICAL SETTING SOURCE MAP - 5233059.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- ↑ Groundwater Flow Direction
- (G) Indeterminate Groundwater Flow at Location
- (GV) Groundwater Flow Varies at Location
- Wildlife Areas

**SITE NAME:** Commercial Properties  
**ADDRESS:** 1326 Jonesboro Road SE  
 Atlanta GA 30315  
**LAT/LONG:** 33.718817 / 84.384763

**CLIENT:** One Consulting Group, Inc.  
**CONTACT:** Ryan Williams  
**INQUIRY #:** 5233059.2s  
**DATE:** March 23, 2018 8:48 pm

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# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

1	Site ID:	0-600193	AQUIFLOW	18852
SE	Groundwater Flow:	E		
1/4 - 1/2 Mile	Shallow Water Depth:	22		
Higher	Deep Water Depth:	35		
	Average Water Depth:	Not Reported		
	Date:	04/18/1994		

A2		FED USGS	USGS40000264675
North			
1/4 - 1/2 Mile			
Lower			

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-334328084230501		
Monloc name:	10DD56		
Monloc type:	Well		
Monloc desc:	U. S. PLT & BMPR SVC		
Huc code:	03070103	Drainage area value:	Not Reported
Drainage area Units:	Not Reported	Contrib drainage area:	Not Reported
Contrib drainage area units:	Not Reported	Latitude:	33.723996
Longitude:	-84.3852043	Source map scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map	Vert measure val:	980.00
Horiz coord refs:	NAD83	Vertacc measure val:	010
Vert measure units:	feet		
Vert acc measure units:	feet		
Vert collection method:	Interpolated from topographic map		
Vert coord refs:	NGVD29	Countrycode:	US
Aquifer name:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19621101	Well depth:	325
Well depth units:	ft	Well hole depth:	325
Well hole depth units:	ft		

Ground-water levels, Number of Measurements: 0

A3		GA WELLS	0000004619
North			
1/4 - 1/2 Mile			
Lower			

Well #:	10DD56	County FIPS:	121
Remarks:	U. S. PLT & BMPR SVC	Longitude:	0842307
Latitude:	334326	Depth:	325
Altitude:	980.00	Diameter of Casing:	6.00
Depth to bottom of Casing:	44.00	Discharge:	45.00
Casing Material:	Steel	Date Built:	196211
Type of Openings:	Open hole		
Depth to top of this open interval:		44.00	
Depth to bottom of this open interval:		325.00	
Primary Use:	Commercial		
Aquifer:	Not Reported		

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

<b>A4</b> <b>NNW</b> <b>1/4 - 1/2 Mile</b> <b>Lower</b>	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	9-600904 NW Not Reported Not Reported Not Reported 05/1992	<b>AQUIFLOW</b>	<b>18954</b>
--	---	---	-----------------	--------------

<b>5</b> <b>WNW</b> <b>1/2 - 1 Mile</b> <b>Lower</b>	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	9-000410 SW 12.89 24.12 Not Reported 03/15/1996	<b>AQUIFLOW</b>	<b>19015</b>
---	---	--	-----------------	--------------

<b>6</b> <b>ESE</b> <b>1/2 - 1 Mile</b> <b>Lower</b>	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	9-000030 SSE 8.80 16.33 Not Reported 7/30/1992	<b>AQUIFLOW</b>	<b>26349</b>
---	---	---	-----------------	--------------

<b>7</b> <b>SSE</b> <b>1/2 - 1 Mile</b> <b>Lower</b>	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	9-000035 NNE 28.50 30.72 Not Reported 10/27/1988	<b>AQUIFLOW</b>	<b>18834</b>
---	---	---	-----------------	--------------

<b>B8</b> <b>West</b> <b>1/2 - 1 Mile</b> <b>Lower</b>		<b>GA WELLS</b>	<b>0000004616</b>
---	--	-----------------	-------------------

Well #:	10DD55	County FIPS:	121
Remarks:	BROWN TRANSPORT		
Latitude:	334308	Longitude:	0842359
Altitude:	940.00	Depth:	325
Depth to bottom of Casing:	40.00	Diameter of Casing:	6.00
Casing Material:	Steel	Discharge:	45.00
Type of Openings:	Open hole	Date Built:	197710
Depth to top of this open interval:			40.00
Depth to bottom of this open interval:			325.00
Primary Use:	Commercial		
Aquifer:	Not Reported		

<b>B9</b> <b>West</b> <b>1/2 - 1 Mile</b> <b>Lower</b>		<b>FED USGS</b>	<b>USGS40000264656</b>
---	--	-----------------	------------------------

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Org. Identifier:	USGS-GA		
Formal name:	USGS Georgia Water Science Center		
Monloc Identifier:	USGS-334308084235901		
Monloc name:	10DD55		
Monloc type:	Well		
Monloc desc:	BROWN TRANSPORT		
Huc code:	03070103	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.7189963
Longitude:	-84.3996492	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map	Vert measure val:	940.00
Horiz coord refsys:	NAD83	Vertacc measure val:	010
Vert measure units:	feet		
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map	Countrycode:	US
Vert coord refsys:	NGVD29		
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19771001	Welldepth:	325
Welldepth units:	ft	Wellholedepth:	325
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

<b>10</b> North 1/2 - 1 Mile Lower	Site ID:	0601010	<b>AQUIFLOW</b>	<b>23068</b>
	Groundwater Flow:	N		
	Shallow Water Depth:	11.01		
	Deep Water Depth:	12.75		
	Average Water Depth:	Not Reported		
	Date:	9/8/1997		
<b>11</b> SE 1/2 - 1 Mile Lower	Site ID:	0600678	<b>AQUIFLOW</b>	<b>26410</b>
	Groundwater Flow:	S		
	Shallow Water Depth:	20.54		
	Deep Water Depth:	26.08		
	Average Water Depth:	Not Reported		
	Date:	4/1993		
<b>12</b> South 1/2 - 1 Mile Lower	Site ID:	0-600349	<b>AQUIFLOW</b>	<b>18828</b>
	Groundwater Flow:	E, W		
	Shallow Water Depth:	17.1		
	Deep Water Depth:	20.7		
	Average Water Depth:	Not Reported		
	Date:	07/1996		
<b>1G</b> North 1/2 - 1 Mile Lower	Site ID:	0601010	<b>AQUIFLOW</b>	<b>23068</b>
	Groundwater Flow:	N		
	Shallow Water Depth:	11.01		
	Deep Water Depth:	12.75		
	Average Water Depth:	Not Reported		
	Date:	9/8/1997		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation			Database	EDR ID Number
2G NNW 1/4 - 1/2 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	0-600904 NW Not Reported Not Reported Not Reported 05/1992	AQUIFLOW	18954
3G WNW 1/2 - 1 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	9-000410 SW 12.89 24.12 Not Reported 03/15/1996	AQUIFLOW	19015
4G SE 1/4 - 1/2 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	0-600193 E 22 35 Not Reported 04/18/1994	AQUIFLOW	18852
5G ESE 1/2 - 1 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	9-000030 SSE 8.80 16.33 Not Reported 7/30/1992	AQUIFLOW	26349
6G SE 1/2 - 1 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	0600678 S 20.54 28.08 Not Reported 4/1993	AQUIFLOW	26410
7G SSE 1/2 - 1 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	9-000035 NNE 28.50 30.72 Not Reported 10/27/1988	AQUIFLOW	18834
8G South 1/2 - 1 Mile Lower	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	0-600349 E, W 17.1 20.7 Not Reported 07/1996	AQUIFLOW	18828



**APPENDIX IV**  
**SOIL BORING LOGS**

# SOIL BORING LOG

Page 1 of 1

BORING NO. SB-1  
 Project No. A18023.02  
 Client: FCS Urban Ministries, Inc.  
 Location: 1326 Jonesboro Rd. SE

Drilling Method: DPT/SSA  
 Sampling Method: MC  
 Project Manager: Ryan Williams  
 Driller: GEO LAB

## GROUNDWATER

Depth Below Ground Surface: 24 ft.  
 At Time of Boring: 24 ft.  
 After One Week: N/A  
 Surface Conditions: Gravel

Start Date: 4/6/2018  
 Comp Date: 4/6/2018  
 Weather: Sunny and 65° F

SAMPLE			Inch	Inch	%	Blows/	OVM	USC	DESCRIPTION:
No.	Type	Dpth	Drvn	Rcvd	Rcvd	6"	ppm		
1		0							Gravel
2	HA	5	N/A	N/A	100%	N/A	N/A	ML	Brown, Orange, Red, Clay, Silt (fill) Soil sampled at 5 ft.
3	MC	10	60	30	50%	N/A	N/A	ML	Brown, Red, Orange, Micaceous, Clay, Silt
4	MC	15	60	45	75%	N/A	N/A	SM	Orange, Brown, Tan, Red, Micaceous, Mottled, Sand, Silt
5	MC	20	60	60	100%	N/A	N/A	SM	Red, Brown, Orange, Mottled, Micaceous, Sand, Silt
6	SSA								Partially weathered rock encountered at 23 ft.
		25	N/A	N/A	N/A	N/A	N/A	N/A	Groundwater encountered at 24 ft.
									Soil boring terminated at 26 ft.
7		30							
		35							

## SAMPLER TYPE:

HA - Hand Auger

GP - Geoprobe

HSA - Hollow Stem Auger

SSA - Solid Stem Auger

SS - Driven Split Spoon

SH - Pressured Shelby Tube

MC - Macro-core / Direct Push™

AH - Rotary Air Hammer

SPT - Standard Penetration Test

Surface Elevation:

Casing Below Surface: N/A

Reference Elevation:

Reference Description:

# SOIL BORING LOG

Page 1 of 1

BORING NO. SB-2  
 Project No. A18023.02  
 Client: FCS Urban Ministries, Inc.  
 Location: 1326 Jonesboro Rd. SE

Drilling Method: DPT  
 Sampling Method: MC  
 Project Manager: Ryan Williams  
 Driller: GEOLAB

## GROUNDWATER

Depth Below Ground Surface: 27 ft.  
 At Time of Boring: 25.8 ft.  
 After One Week: N/A  
 Surface Conditions: Grass

Start Date: 4/6/2018  
 Comp Date: 4/6/2018  
 Weather: Sunny and 65° F

SAMPLE			Inch	Inch	%	Blows/	OVM	USC	DESCRIPTION
No.	Type	Depth	Drvn	Revd	Revd	6"	ppm		
1		0					0.3	ML	Grass
2	HA	5	N/A	N/A	100%	N/A	N/A	ML	Red, Orange, Clay, Silt (fill)
3	MC	10	60	48	80%	N/A	N/A	ML	Brown, Orange, Red, Micaceous, Clay, Silt <i>Soil sampled at 12 ft.</i>
4	MC	15	60	54	90%	N/A	N/A	SM	Brown, Red, Tan, Orange, Micaceous, Mottled, Sand, Silt
5	MC	20	60	45	75%	N/A	N/A	SM	Dk. Brown, Gray, Sand, Silt
6	MC	25	60	30	50%	N/A	N/A	SM	Dk. Brown, Gray, Sand, Silt
<i>Groundwater encountered at 27 ft.</i>									
7	MC	30	60	48	80%	N/A	N/A	SM	Gray, Sand (wet) <i>Soil boring terminated at 30 ft.</i>
		35							

## SAMPLER TYPE:

HA - Hand Auger  
 GP - Geoprobe  
 HSA - Hollow Stem Auger  
 SSA - Solid Stem Auger  
 SS - Driven Split Spoon  
 SH - Pressured Shelby Tube  
 MC - Macro-core / Direct Push™  
 AH - Rotary Air Hammer  
 SPT - Standard Penetration Test

Surface Elevation:

Casing Below Surface: N/A

Reference Elevation:

Reference Description:

# SOIL BORING LOG

Page 1 of 1

BORING NO. SB-3  
 Project No. A18023.02  
 Client: FCS Urban Ministries, Inc.  
 Location: 0 McDonough Blvd. SE

Drilling Method: SSA  
 Sampling Method: N/A  
 Project Manager: Ryan Williams  
 Driller: GEOLAB

## GROUNDWATER

Depth Below Ground Surface: 31 ft.  
 At Time of Boring: 35 ft.  
 After One Week: N/A  
 Surface Conditions: Grass

Start Date: 4/6/2018  
 Comp Date: 4/6/2018  
 Weather: Sunny and 65° F

SAMPLE			Inch Drvn	Inch Rcvd	% Rcvd	Blows/ 6"	OVM ppm	USC	DESCRIPTION
No.	Type	Dpth							
1		0							Grass
2	HA	5	N/A	N/A	100%	N/A	N/A	ML	Brown, Orange, Red, Clay, Silt (fill)
3	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	Orange, Red, Brown, Micaceous, Sand, Silt
4	MC	15	60	48	80%	N/A	N/A	SM	Red, Brown, Micaceous, Sand, Silt
5	MC	20	60	60	100%	N/A	N/A	SM	Red, Brown, Micaceous, Sand, Silt
6	SSA	25	N/A	N/A	N/A	N/A	N/A	SM	Brown, Micaceous, Sand, Silt
7	SSA	30	N/A	N/A	N/A	N/A	N/A	SM	Brown, Micaceous, Sand, Silt
	SSA	35	N/A	N/A	N/A	N/A	N/A	N/A	Groundwater encountered/Soil boring terminated at 35 ft.

## SAMPLER TYPE:

HA - Hand Auger  
 GP - Geoprobe  
 HSA - Hollow Stem Auger  
 SSA - Solid Stem Auger  
 SS - Driven Split Spoon  
 SH - Pressured Shelby Tube  
 MC - Macro-core / Direct Push™  
 AH - Rotary Air Hammer  
 SPT - Standard Penetration Test

Surface Elevation:

Casing Below Surface: N/A

Reference Elevation:

Reference Description:

# SOIL BORING LOG

Page 1 of 1

BORING NO. SB-4  
 Project No. A18023.02  
 Client: FCS Urban Ministries, Inc.  
 Location: 0 McDonough Blvd. SE

Drilling Method: SSA  
 Sampling Method: N/A  
 Project Manager: Ryan Williams  
 Driller: GEO LAB

## GROUNDWATER

Depth Below Ground Surface: 25.35 ft.  
 At Time of Boring: 30 ft.  
 After One Week: N/A  
 Surface Conditions: Grass

Start Date: 4/6/2018  
 Comp Date: 4/6/2018  
 Weather: Sunny and 65° F

SAMPLE			Inch	Inch	%	Blows/	OVM	USC	DESCRIPTION
No.	Type	Dpth	Drvn	Revd	Revd	6"	ppm		
1		0							Grass
2	HA	5	N/A	N/A	N/A	N/A	N/A	ML	Brown, Orange, Red, Clay, Silt (fill)
3	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	Orange, Red, Brown, Micaceous, Sand, Silt
4	MC	15	60	48	100%	N/A	N/A	SM	Red, Brown, Micaceous, Sand, Silt
5	MC	20	60	60	100%	N/A	N/A	SM	Brown, Micaceous, Sand, Silt
6	SSA	25	N/A	N/A	N/A	N/A	N/A	SM	Brown, Micaceous, Sand, Silt
									partially weathered rock encountered at 25 ft.
7	SSA	30						SM	Brown, Micaceous, Sand
									Groundwater encountered/Soil boring terminated at 30 ft.
		35							

## SAMPLER TYPE:

HA - Hand Auger  
 GP - Geoprobe  
 HISA - Hollow Stem Auger  
 SSA - Solid Stem Auger  
 SS - Driven Split Spoon  
 SH - Pressured Shelby Tube  
 MC - Macro-core / Direct Push™  
 AH - Rotary Air Hammer  
 SPT - Standard Penetration Test

Surface Elevation:

Casing Below Surface: N/A

Reference Elevation:

Reference Description:

## **APPENDIX V**

### **LABORATORY ANALYTICAL RESULTS**

April 11, 2018

Ryan Williams  
One Consulting Group Inc  
448 Ralph David Abernathy  
STE 7  
Atlanta, GA 30312

RE: Project: Ryan Williams  
Pace Project No.: 263723

Dear Ryan Williams:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Eben Buchanan  
eben.buchanan@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.



Pace Analytical Services, LLC  
110 Technology Parkway  
Peachtree Corners, GA 30092  
(770)734-4200

## CERTIFICATIONS

Project: Ryan Williams  
Pace Project No.: 263723

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092  
Florida DOH Certification #: E87315  
Georgia DW Inorganics Certification #: 812  
Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381  
South Carolina Certification #: 98011001  
Texas Certification #: T104704397-08-TX  
Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Ryan Williams  
Pace Project No.: 263723

Lab ID	Sample ID	Matrix	Date Collected	Date Received
263723001	SB-1	Solid	04/06/18 09:20	04/09/18 14:15
263723002	SB-2	Solid	04/06/18 09:34	04/09/18 14:15
263723003	SB-1	Water	04/06/18 15:33	04/09/18 14:15
263723004	SB-2	Water	04/06/18 13:01	04/09/18 14:15
263723005	SB-3	Water	04/06/18 12:41	04/09/18 14:15
263723006	SB-4	Water	04/06/18 15:09	04/09/18 14:15
263723007	Trip Blank	Water	04/06/18 00:00	04/09/18 14:15

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## SAMPLE ANALYTE COUNT

Project: Ryan Williams  
Pace Project No.: 263723

Lab ID	Sample ID	Method	Analysts	Analytes Reported
263723001	SB-1	EPA 8260B	JHG	73
		Pace SOP #204	JPT	1
263723002	SB-2	EPA 8260B	JHG	73
		Pace SOP #204	JPT	1
263723003	SB-1	EPA 8260B	LIH	64
263723004	SB-2	EPA 8260B	LIH	64
263723005	SB-3	EPA 8260B	LIH	64
263723006	SB-4	EPA 8260B	LIH	64
263723007	Trip Blank	EPA 8260B	LIH	64

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-1 Lab ID: 263723001 Collected: 04/06/18 09:20 Received: 04/09/18 14:15 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>B260 MSV 5035</b> Analytical Method: EPA 8260B Preparation Method: EPA 5035								
Acetone	ND	ug/kg	93.5	1	04/10/18 11:01	04/10/18 15:45	67-64-1	
Acrolein	ND	ug/kg	46.8	1	04/10/18 11:01	04/10/18 15:45	107-02-8	
Acrylonitrile	ND	ug/kg	46.8	1	04/10/18 11:01	04/10/18 15:45	107-13-1	
Benzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	71-43-2	
Bromobenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	108-86-1	
Bromochloromethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	74-97-5	
Bromodichloromethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	75-27-4	
Bromoform	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	75-25-2	
Bromomethane	ND	ug/kg	9.4	1	04/10/18 11:01	04/10/18 15:45	74-83-9	
2-Butanone (MEK)	ND	ug/kg	93.5	1	04/10/18 11:01	04/10/18 15:45	78-93-3	
n-Butylbenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	98-06-6	
Carbon disulfide	ND	ug/kg	9.4	1	04/10/18 11:01	04/10/18 15:45	75-15-0	
Carbon tetrachloride	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	56-23-5	
Chlorobenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	108-90-7	
Chloroethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	75-00-3	
Chloroform	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	67-66-3	
Chloromethane	ND	ug/kg	9.4	1	04/10/18 11:01	04/10/18 15:45	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	96-12-8	
Dibromochloromethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	106-93-4	
Dibromomethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.4	1	04/10/18 11:01	04/10/18 15:45	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	108-20-3	
Ethylbenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	100-41-4	
2-Hexanone	ND	ug/kg	46.8	1	04/10/18 11:01	04/10/18 15:45	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	99-87-6	
Methylene Chloride	ND	ug/kg	18.7	1	04/10/18 11:01	04/10/18 15:45	75-09-2	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-1 Lab ID: 263723001 Collected: 04/06/18 09:20 Received: 04/09/18 14:15 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Analytical Method: EPA 8260B Preparation Method: EPA 5035								
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	46.8	1	04/10/18 11:01	04/10/18 15:45	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	1634-04-4	
Naphthalene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	91-20-3	
n-Propylbenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	103-65-1	
Styrene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	79-34-5	
Tetrachloroethene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	127-18-4	
Toluene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	79-00-5	
Trichloroethene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	108-67-8	
Vinyl acetate	ND	ug/kg	9.4	1	04/10/18 11:01	04/10/18 15:45	108-05-4	
Vinyl chloride	ND	ug/kg	9.4	1	04/10/18 11:01	04/10/18 15:45	75-01-4	
Xylene (Total)	ND	ug/kg	9.4	1	04/10/18 11:01	04/10/18 15:45	1330-20-7	
m&p-Xylene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	179601-23-1	
o-Xylene	ND	ug/kg	4.7	1	04/10/18 11:01	04/10/18 15:45	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	109	%	73-114	1	04/10/18 11:01	04/10/18 15:45	1868-53-7	
Toluene-d8 (S)	104	%	85-109	1	04/10/18 11:01	04/10/18 15:45	2037-26-5	
4-Bromofluorobenzene (S)	108	%	77-124	1	04/10/18 11:01	04/10/18 15:45	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	69-133	1	04/10/18 11:01	04/10/18 15:45	17060-07-0	

### Percent Moisture

Analytical Method: Pace SOP #204

Percent Moisture	7.8	%	0.10	1	04/10/18 14:59
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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-2 Lab ID: 263723002 Collected: 04/06/18 09:34 Received: 04/09/18 14:15 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Analytical Method: EPA 8260B Preparation Method: EPA 5035								
Acetone	ND	ug/kg	110	1	04/10/18 11:01	04/10/18 16:10	67-64-1	
Acrolein	ND	ug/kg	54.9	1	04/10/18 11:01	04/10/18 16:10	107-02-8	
Acrylonitrile	ND	ug/kg	54.9	1	04/10/18 11:01	04/10/18 16:10	107-13-1	
Benzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	71-43-2	
Bromobenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	108-86-1	
Bromochloromethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	74-97-5	
Bromodichloromethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	75-27-4	
Bromoform	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	75-25-2	
Bromomethane	ND	ug/kg	11.0	1	04/10/18 11:01	04/10/18 16:10	74-83-9	
2-Butanone (MEK)	ND	ug/kg	110	1	04/10/18 11:01	04/10/18 16:10	78-93-3	
n-Butylbenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	98-06-6	
Carbon disulfide	ND	ug/kg	11.0	1	04/10/18 11:01	04/10/18 16:10	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	56-23-5	
Chlorobenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	108-90-7	
Chloroethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	75-00-3	
Chloroform	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	67-66-3	
Chloromethane	ND	ug/kg	11.0	1	04/10/18 11:01	04/10/18 16:10	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	96-12-8	
Dibromochloromethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	106-93-4	
Dibromomethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.0	1	04/10/18 11:01	04/10/18 16:10	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	108-20-3	
Ethylbenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	100-41-4	
2-Hexanone	ND	ug/kg	54.9	1	04/10/18 11:01	04/10/18 16:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	99-87-6	
Methylene Chloride	ND	ug/kg	22.0	1	04/10/18 11:01	04/10/18 16:10	75-09-2	

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-2 Lab ID: 263723002 Collected: 04/06/18 09:34 Received: 04/09/18 14:15 Matrix: Solid  
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Analytical Method: EPA 8260B Preparation Method: EPA 5035								
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	54.9	1	04/10/18 11:01	04/10/18 16:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	1634-04-4	
Naphthalene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	91-20-3	
n-Propylbenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	103-65-1	
Styrene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	79-34-5	
Tetrachloroethene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	127-18-4	
Toluene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	79-00-5	
Trichloroethene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	108-67-8	
Vinyl acetate	ND	ug/kg	11.0	1	04/10/18 11:01	04/10/18 16:10	108-05-4	
Vinyl chloride	ND	ug/kg	11.0	1	04/10/18 11:01	04/10/18 16:10	75-01-4	
Xylene (Total)	ND	ug/kg	11.0	1	04/10/18 11:01	04/10/18 16:10	1330-20-7	
m&p-Xylene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	179601-23-1	
o-Xylene	ND	ug/kg	5.5	1	04/10/18 11:01	04/10/18 16:10	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	108	%	73-114	1	04/10/18 11:01	04/10/18 16:10	1868-53-7	
Toluene-d8 (S)	103	%	85-109	1	04/10/18 11:01	04/10/18 16:10	2037-26-5	
4-Bromofluorobenzene (S)	107	%	77-124	1	04/10/18 11:01	04/10/18 16:10	460-00-4	
1,2-Dichloroethane-d4 (S)	118	%	69-133	1	04/10/18 11:01	04/10/18 16:10	17060-07-0	

### Percent Moisture

Analytical Method: Pace SOP #204

Percent Moisture	12.4	%	0.10	1	04/10/18 15:00
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## ANALYTICAL RESULTS

Project: Ryan Williams

Pace Project No.: 263723

Sample: SB-1		Lab ID: 263723003		Collected: 04/06/18 15:33		Received: 04/09/18 14:15		Matrix: Water	
Paramotors	Results	Units	Report Llimit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		04/10/18 15:06	67-64-1		
Benzene	ND	ug/L	1.0	1		04/10/18 15:06	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		04/10/18 15:06	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		04/10/18 15:06	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		04/10/18 15:06	75-27-4		
Bromoform	ND	ug/L	1.0	1		04/10/18 15:06	75-25-2		
Bromomethane	ND	ug/L	2.0	1		04/10/18 15:06	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		04/10/18 15:06	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		04/10/18 15:06	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		04/10/18 15:06	108-90-7		
Chloroethane	ND	ug/L	1.0	1		04/10/18 15:06	75-00-3		
Chloroform	ND	ug/L	1.0	1		04/10/18 15:06	67-66-3		
Chloromethane	ND	ug/L	1.0	1		04/10/18 15:06	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 15:06	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 15:06	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		04/10/18 15:06	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		04/10/18 15:06	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	1		04/10/18 15:06	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		04/10/18 15:06	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:06	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:06	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:06	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		04/10/18 15:06	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		04/10/18 15:06	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		04/10/18 15:06	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:06	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:06	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:06	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:06	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:06	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:06	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:06	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:06	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:06	10061-02-6		
Diisopropyl ether	ND	ug/L	10.0	1		04/10/18 15:06	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		04/10/18 15:06	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1		04/10/18 15:06	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		04/10/18 15:06	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		04/10/18 15:06	99-87-6		
Methylene Chloride	ND	ug/L	1.0	1		04/10/18 15:06	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		04/10/18 15:06	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	10.0	1		04/10/18 15:06	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		04/10/18 15:06	91-20-3		
Styrene	ND	ug/L	1.0	1		04/10/18 15:06	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 15:06	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 15:06	79-34-5		
Tetrachloroethene	19.9	ug/L	1.0	1		04/10/18 15:06	127-18-4		

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-1		Lab ID: 263723003		Collected: 04/06/18 15:33		Received: 04/09/18 14:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		04/10/18 15:06	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:06	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:06	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/10/18 15:06	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/10/18 15:06	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		04/10/18 15:06	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		04/10/18 15:06	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		04/10/18 15:06	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		04/10/18 15:06	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		04/10/18 15:06	75-01-4		
Xylene (Total)	ND	ug/L	2.0	1		04/10/18 15:06	1330-20-7		
m&p-Xylene	ND	ug/L	1.0	1		04/10/18 15:06	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		04/10/18 15:06	95-47-6		
Surrogates									
1,2-Dichloroethane-d4 (S)	114	%	81-119	1		04/10/18 15:06	17060-07-0		
Dibromofluoromethane (S)	102	%	82-114	1		04/10/18 15:06	1868-53-7		
4-Bromofluorobenzene (S)	100	%	82-120	1		04/10/18 15:06	460-00-4		
Toluene-d8 (S)	100	%	82-109	1		04/10/18 15:06	2037-26-5		

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-2	Lab ID: 263723004	Collected: 04/06/18 13:01	Received: 04/09/18 14:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		04/10/18 15:32	67-64-1	
Benzene	27.9	ug/L	1.0	1		04/10/18 15:32	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		04/10/18 15:32	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		04/10/18 15:32	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		04/10/18 15:32	75-27-4	
Bromoform	ND	ug/L	1.0	1		04/10/18 15:32	75-25-2	
Bromomethane	ND	ug/L	2.0	1		04/10/18 15:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		04/10/18 15:32	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		04/10/18 15:32	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		04/10/18 15:32	108-90-7	
Chloroethane	ND	ug/L	1.0	1		04/10/18 15:32	75-00-3	
Chloroform	ND	ug/L	1.0	1		04/10/18 15:32	67-66-3	
Chloromethane	ND	ug/L	1.0	1		04/10/18 15:32	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 15:32	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 15:32	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		04/10/18 15:32	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		04/10/18 15:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	1		04/10/18 15:32	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		04/10/18 15:32	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:32	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:32	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		04/10/18 15:32	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		04/10/18 15:32	75-34-3	
1,2-Dichloroethane	1.7	ug/L	1.0	1		04/10/18 15:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:32	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:32	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:32	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:32	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:32	10061-02-6	
Diisopropyl ether	ND	ug/L	10.0	1		04/10/18 15:32	108-20-3	
Ethylbenzene	71.4	ug/L	1.0	1		04/10/18 15:32	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1		04/10/18 15:32	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		04/10/18 15:32	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		04/10/18 15:32	99-87-6	
Methylene Chloride	ND	ug/L	1.0	1		04/10/18 15:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		04/10/18 15:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	1		04/10/18 15:32	1634-04-4	
Naphthalene	121	ug/L	1.0	1		04/10/18 15:32	91-20-3	
Styrene	ND	ug/L	1.0	1		04/10/18 15:32	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 15:32	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 15:32	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		04/10/18 15:32	127-18-4	

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-2		Lab ID: 263723004		Collected: 04/06/18 13:01		Received: 04/09/18 14:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		04/10/18 15:32	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:32	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:32	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/10/18 15:32	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/10/18 15:32	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		04/10/18 15:32	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		04/10/18 15:32	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		04/10/18 15:32	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		04/10/18 15:32	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		04/10/18 15:32	75-01-4		
Xylene (Total)	31.7	ug/L	2.0	1		04/10/18 15:32	1330-20-7		
m&p-Xylene	15.8	ug/L	1.0	1		04/10/18 15:32	179601-23-1		
o-Xylene	15.9	ug/L	1.0	1		04/10/18 15:32	95-47-6		
Surrogates									
1,2-Dichloroethane-d4 (S)	116	%.	81-119	1		04/10/18 15:32	17060-07-0		
Dibromofluoromethane (S)	101	%.	82-114	1		04/10/18 15:32	1868-53-7		
4-Bromofluorobenzene (S)	100	%.	82-120	1		04/10/18 15:32	460-00-4		
Toluene-d8 (S)	101	%.	82-109	1		04/10/18 15:32	2037-26-5		

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-3	Lab ID: 263723005	Collected: 04/06/18 12:41	Received: 04/09/18 14:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		04/10/18 15:57	67-64-1	
Benzene	ND	ug/L	1.0	1		04/10/18 15:57	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		04/10/18 15:57	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		04/10/18 15:57	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		04/10/18 15:57	75-27-4	
Bromoform	ND	ug/L	1.0	1		04/10/18 15:57	75-25-2	
Bromomethane	ND	ug/L	2.0	1		04/10/18 15:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		04/10/18 15:57	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		04/10/18 15:57	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		04/10/18 15:57	108-90-7	
Chloroethane	ND	ug/L	1.0	1		04/10/18 15:57	75-00-3	
Chloroform	ND	ug/L	1.0	1		04/10/18 15:57	67-66-3	
Chloromethane	ND	ug/L	1.0	1		04/10/18 15:57	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 15:57	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 15:57	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		04/10/18 15:57	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		04/10/18 15:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	1		04/10/18 15:57	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		04/10/18 15:57	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:57	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:57	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		04/10/18 15:57	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		04/10/18 15:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		04/10/18 15:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 15:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:57	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:57	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 15:57	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:57	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 15:57	10061-02-6	
Diisopropyl ether	ND	ug/L	10.0	1		04/10/18 15:57	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		04/10/18 15:57	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1		04/10/18 15:57	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		04/10/18 15:57	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		04/10/18 15:57	99-87-6	
Methylene Chloride	ND	ug/L	1.0	1		04/10/18 15:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		04/10/18 15:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	1		04/10/18 15:57	1634-04-4	
Naphthalene	6.7	ug/L	1.0	1		04/10/18 15:57	91-20-3	
Styrene	ND	ug/L	1.0	1		04/10/18 15:57	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 15:57	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 15:57	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		04/10/18 15:57	127-18-4	

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-3		Lab ID: 263723005		Collected: 04/06/18 12:41		Received: 04/09/18 14:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		04/10/18 15:57	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:57	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 15:57	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/10/18 15:57	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/10/18 15:57	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		04/10/18 15:57	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		04/10/18 15:57	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		04/10/18 15:57	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		04/10/18 15:57	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		04/10/18 15:57	75-01-4		
Xylene (Total)	ND	ug/L	2.0	1		04/10/18 15:57	1330-20-7		
m&p-Xylene	ND	ug/L	1.0	1		04/10/18 15:57	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		04/10/18 15:57	95-47-6		
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%.	81-119	1		04/10/18 15:57	17060-07-0		
Dibromofluoromethane (S)	102	%.	82-114	1		04/10/18 15:57	1868-53-7		
4-Bromofluorobenzene (S)	101	%.	82-120	1		04/10/18 15:57	460-00-4		
Toluene-d8 (S)	101	%.	82-109	1		04/10/18 15:57	2037-26-5		

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-4		Lab ID: 263723006		Collected: 04/06/18 15:09		Received: 04/09/18 14:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV		Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		04/10/18 23:11	67-64-1		
Benzene	14.6	ug/L	1.0	1		04/10/18 23:11	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		04/10/18 23:11	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		04/10/18 23:11	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		04/10/18 23:11	75-27-4		
Bromoform	ND	ug/L	1.0	1		04/10/18 23:11	75-25-2		
Bromomethane	ND	ug/L	2.0	1		04/10/18 23:11	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		04/10/18 23:11	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		04/10/18 23:11	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		04/10/18 23:11	108-90-7		
Chloroethane	ND	ug/L	1.0	1		04/10/18 23:11	75-00-3		
Chloroform	ND	ug/L	1.0	1		04/10/18 23:11	67-66-3		
Chloromethane	ND	ug/L	1.0	1		04/10/18 23:11	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 23:11	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 23:11	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		04/10/18 23:11	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		04/10/18 23:11	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	1		04/10/18 23:11	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		04/10/18 23:11	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:11	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:11	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:11	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		04/10/18 23:11	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		04/10/18 23:11	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		04/10/18 23:11	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		04/10/18 23:11	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 23:11	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 23:11	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 23:11	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		04/10/18 23:11	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 23:11	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		04/10/18 23:11	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 23:11	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 23:11	10061-02-6		
Diisopropyl ether	ND	ug/L	10.0	1		04/10/18 23:11	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		04/10/18 23:11	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1		04/10/18 23:11	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		04/10/18 23:11	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		04/10/18 23:11	99-87-6		
Methylene Chloride	ND	ug/L	1.0	1		04/10/18 23:11	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		04/10/18 23:11	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	10.0	1		04/10/18 23:11	1634-04-4		
Naphthalene	4.7	ug/L	1.0	1		04/10/18 23:11	91-20-3		
Styrene	ND	ug/L	1.0	1		04/10/18 23:11	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 23:11	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 23:11	79-34-5		
Tetrachloroethene	1.3	ug/L	1.0	1		04/10/18 23:11	127-18-4		

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: SB-4		Lab ID: 263723006		Collected: 04/06/18 15:09		Received: 04/09/18 14:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		04/10/18 23:11	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:11	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:11	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/10/18 23:11	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/10/18 23:11	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		04/10/18 23:11	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		04/10/18 23:11	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		04/10/18 23:11	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		04/10/18 23:11	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		04/10/18 23:11	75-01-4		
Xylene (Total)	ND	ug/L	2.0	1		04/10/18 23:11	1330-20-7		
m&p-Xylene	ND	ug/L	1.0	1		04/10/18 23:11	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		04/10/18 23:11	95-47-6		
Surrogates									
1,2-Dichloroethane-d4 (S)	118	%	81-119	1		04/10/18 23:11	17060-07-0		
Dibromofluoromethane (S)	100	%	82-114	1		04/10/18 23:11	1868-53-7		
4-Bromofluorobenzene (S)	104	%	82-120	1		04/10/18 23:11	460-00-4		
Toluene-d8 (S)	99	%	82-109	1		04/10/18 23:11	2037-26-5		

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## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: Trip Blank		Lab ID: 263723007	Collected: 04/06/18 00:00	Received: 04/09/18 14:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B						
Acetone	ND	ug/L	25.0	1		04/10/18 23:37	67-64-1	
Benzene	ND	ug/L	1.0	1		04/10/18 23:37	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		04/10/18 23:37	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		04/10/18 23:37	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		04/10/18 23:37	75-27-4	
Bromoform	ND	ug/L	1.0	1		04/10/18 23:37	75-25-2	
Bromomethane	ND	ug/L	2.0	1		04/10/18 23:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		04/10/18 23:37	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		04/10/18 23:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		04/10/18 23:37	108-90-7	
Chloroethane	ND	ug/L	1.0	1		04/10/18 23:37	75-00-3	
Chloroform	ND	ug/L	1.0	1		04/10/18 23:37	67-66-3	
Chloromethane	ND	ug/L	1.0	1		04/10/18 23:37	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 23:37	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		04/10/18 23:37	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		04/10/18 23:37	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		04/10/18 23:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	1		04/10/18 23:37	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		04/10/18 23:37	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:37	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		04/10/18 23:37	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		04/10/18 23:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		04/10/18 23:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		04/10/18 23:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 23:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/10/18 23:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 23:37	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		04/10/18 23:37	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		04/10/18 23:37	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		04/10/18 23:37	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 23:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/10/18 23:37	10061-02-6	
Diisopropyl ether	ND	ug/L	10.0	1		04/10/18 23:37	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		04/10/18 23:37	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	1		04/10/18 23:37	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		04/10/18 23:37	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		04/10/18 23:37	99-87-6	
Methylene Chloride	ND	ug/L	1.0	1		04/10/18 23:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		04/10/18 23:37	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	1		04/10/18 23:37	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		04/10/18 23:37	91-20-3	
Styrene	ND	ug/L	1.0	1		04/10/18 23:37	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 23:37	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/10/18 23:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		04/10/18 23:37	127-18-4	

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Pace Analytical Services, LLC  
110 Technology Parkway  
Peachtree Corners, GA 30092  
(770)734-4200

## ANALYTICAL RESULTS

Project: Ryan Williams  
Pace Project No.: 263723

Sample: Trip Blank		Lab ID: 263723007		Collected: 04/06/18 00:00		Received: 04/09/18 14:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260B MSV		Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		04/10/18 23:37	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:37	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		04/10/18 23:37	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/10/18 23:37	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/10/18 23:37	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		04/10/18 23:37	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		04/10/18 23:37	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		04/10/18 23:37	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		04/10/18 23:37	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		04/10/18 23:37	75-01-4		
Xylene (Total)	ND	ug/L	2.0	1		04/10/18 23:37	1330-20-7		
m&p-Xylene	ND	ug/L	1.0	1		04/10/18 23:37	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		04/10/18 23:37	95-47-6		
Surrogates									
1,2-Dichloroethane-d4 (S)	115	%	81-119	1		04/10/18 23:37	17060-07-0		
Dibromofluoromethane (S)	99	%	82-114	1		04/10/18 23:37	1868-53-7		
4-Bromofluorobenzene (S)	100	%	82-120	1		04/10/18 23:37	460-00-4		
Toluene-d8 (S)	101	%	82-109	1		04/10/18 23:37	2037-26-5		

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## QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

QC Batch: 4051 Analysis Method: EPA 8260B  
QC Batch Method: EPA 5035 Analysis Description: 8260 MSV 5035  
Associated Lab Samples: 263723001, 263723002

METHOD BLANK: 20272 Matrix: Solid  
Associated Lab Samples: 263723001, 263723002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.0	04/10/18 10:50	
1,1,1-Trichloroethane	ug/kg	ND	5.0	04/10/18 10:50	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	04/10/18 10:50	
1,1,2-Trichloroethane	ug/kg	ND	5.0	04/10/18 10:50	
1,1-Dichloroethane	ug/kg	ND	5.0	04/10/18 10:50	
1,1-Dichloroethene	ug/kg	ND	5.0	04/10/18 10:50	
1,1-Dichloropropene	ug/kg	ND	5.0	04/10/18 10:50	
1,2,3-Trichlorobenzene	ug/kg	ND	5.0	04/10/18 10:50	
1,2,3-Trichloropropane	ug/kg	ND	5.0	04/10/18 10:50	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	04/10/18 10:50	
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	04/10/18 10:50	
1,2-Dibromo-3-chloropropane	ug/kg	ND	5.0	04/10/18 10:50	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	04/10/18 10:50	
1,2-Dichlorobenzene	ug/kg	ND	5.0	04/10/18 10:50	
1,2-Dichloroethane	ug/kg	ND	5.0	04/10/18 10:50	
1,2-Dichloropropane	ug/kg	ND	5.0	04/10/18 10:50	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	04/10/18 10:50	
1,3-Dichlorobenzene	ug/kg	ND	5.0	04/10/18 10:50	
1,3-Dichloropropane	ug/kg	ND	5.0	04/10/18 10:50	
1,4-Dichlorobenzene	ug/kg	ND	5.0	04/10/18 10:50	
2,2-Dichloropropane	ug/kg	ND	5.0	04/10/18 10:50	
2-Butanone (MEK)	ug/kg	ND	100	04/10/18 10:50	
2-Chlorotoluene	ug/kg	ND	5.0	04/10/18 10:50	
2-Hexanone	ug/kg	ND	50.0	04/10/18 10:50	
4-Chlorotoluene	ug/kg	ND	5.0	04/10/18 10:50	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	50.0	04/10/18 10:50	
Acetone	ug/kg	ND	100	04/10/18 10:50	
Acrolein	ug/kg	ND	50.0	04/10/18 10:50	
Acrylonitrile	ug/kg	ND	50.0	04/10/18 10:50	
Benzene	ug/kg	ND	5.0	04/10/18 10:50	
Bromobenzene	ug/kg	ND	5.0	04/10/18 10:50	
Bromochloromethane	ug/kg	ND	5.0	04/10/18 10:50	
Bromodichloromethane	ug/kg	ND	5.0	04/10/18 10:50	
Bromoform	ug/kg	ND	5.0	04/10/18 10:50	
Bromomethane	ug/kg	ND	10.0	04/10/18 10:50	
Carbon disulfide	ug/kg	ND	10.0	04/10/18 10:50	
Carbon tetrachloride	ug/kg	ND	5.0	04/10/18 10:50	
Chlorobenzene	ug/kg	ND	5.0	04/10/18 10:50	
Chloroethane	ug/kg	ND	5.0	04/10/18 10:50	
Chloroform	ug/kg	ND	5.0	04/10/18 10:50	
Chloromethane	ug/kg	ND	10.0	04/10/18 10:50	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

METHOD BLANK: 20272  
Associated Lab Samples: 263723001, 263723002

Matrix: Solid

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/kg	ND	5.0	04/10/18 10:50	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	04/10/18 10:50	
Dibromochloromethane	ug/kg	ND	5.0	04/10/18 10:50	
Dibromomethane	ug/kg	ND	5.0	04/10/18 10:50	
Dichlorodifluoromethane	ug/kg	ND	10.0	04/10/18 10:50	
Diisopropyl ether	ug/kg	ND	5.0	04/10/18 10:50	
Ethylbenzene	ug/kg	ND	5.0	04/10/18 10:50	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	04/10/18 10:50	
m&p-Xylene	ug/kg	ND	5.0	04/10/18 10:50	
Methyl-tert-butyl ether	ug/kg	ND	5.0	04/10/18 10:50	
Methylene Chloride	ug/kg	ND	20.0	04/10/18 10:50	
n-Butylbenzene	ug/kg	ND	5.0	04/10/18 10:50	
n-Propylbenzene	ug/kg	ND	5.0	04/10/18 10:50	
Naphthalene	ug/kg	ND	5.0	04/10/18 10:50	
o-Xylene	ug/kg	ND	5.0	04/10/18 10:50	
p-Isopropyltoluene	ug/kg	ND	5.0	04/10/18 10:50	
sec-Butylbenzene	ug/kg	ND	5.0	04/10/18 10:50	
Styrene	ug/kg	ND	5.0	04/10/18 10:50	
tert-Butylbenzene	ug/kg	ND	5.0	04/10/18 10:50	
Tetrachloroethene	ug/kg	ND	5.0	04/10/18 10:50	
Toluene	ug/kg	ND	5.0	04/10/18 10:50	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	04/10/18 10:50	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	04/10/18 10:50	
Trichloroethene	ug/kg	ND	5.0	04/10/18 10:50	
Trichlorofluoromethane	ug/kg	ND	5.0	04/10/18 10:50	
Vinyl acetate	ug/kg	ND	10.0	04/10/18 10:50	
Vinyl chloride	ug/kg	ND	10.0	04/10/18 10:50	
Xylene (Total)	ug/kg	ND	10.0	04/10/18 10:50	
1,2-Dichloroethane-d4 (S)	%	108	69-133	04/10/18 10:50	
4-Bromofluorobenzene (S)	%	106	77-124	04/10/18 10:50	
Dibromofluoromethane (S)	%	106	73-114	04/10/18 10:50	
Toluene-d8 (S)	%	105	85-109	04/10/18 10:50	

LABORATORY CONTROL SAMPLE: 20273

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	50	43.7	87	61-133	
1,1,1-Trichloroethane	ug/kg	50	45.4	91	71-149	
1,1,2,2-Tetrachloroethane	ug/kg	50	46.9	94	70-134	
1,1,2-Trichloroethane	ug/kg	50	44.7	89	74-139	
1,1-Dichloroethane	ug/kg	50	44.5	89	81-140	
1,1-Dichloroethene	ug/kg	50	45.6	91	68-150	
1,1-Dichloropropene	ug/kg	50	44.2	88	71-139	
1,2,3-Trichlorobenzene	ug/kg	50	46.2	92	40-164	

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## QUALITY CONTROL DATA

Project: Ryan Williams

Pace Project No.: 263723

LABORATORY CONTROL SAMPLE: 20273

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,3-Trichloropropane	ug/kg	50	46.1	92	72-141	
1,2,4-Trichlorobenzene	ug/kg	50	47.2	94	49-147	
1,2,4-Trimethylbenzene	ug/kg	50	43.5	87	64-137	
1,2-Dibromo-3-chloropropane	ug/kg	50	44.1	88	80-134	
1,2-Dibromoethane (EDB)	ug/kg	50	44.6	89	70-143	
1,2-Dichlorobenzene	ug/kg	50	43.6	87	59-162	
1,2-Dichloroethane	ug/kg	50	42.9	86	69-135	
1,2-Dichloropropane	ug/kg	50	44.8	90	68-147	
1,3,5-Trimethylbenzene	ug/kg	50	43.8	88	68-138	
1,3-Dichlorobenzene	ug/kg	50	43.5	87	67-152	
1,3-Dichloropropane	ug/kg	50	43.9	88	67-143	
1,4-Dichlorobenzene	ug/kg	50	43.7	87	72-138	
2,2-Dichloropropane	ug/kg	50	45.0	90	56-162	
2-Butanone (MEK)	ug/kg	100	97.2	97	52-163	
2-Chlorotoluene	ug/kg	50	44.7	89	69-142	
2-Hexanone	ug/kg	100	90.8	91	60-186	
4-Chlorotoluene	ug/kg	50	43.7	87	64-137	
4-Methyl-2-pentanone (MIBK)	ug/kg	100	92.4	92	80-129	
Acetone	ug/kg	100	103	103	52-160	
Acrolein	ug/kg	100	103	103	42-183	
Acrylonitrile	ug/kg	200	179	89	63-133	
Benzene	ug/kg	50	45.3	91	70-141	
Bromobenzene	ug/kg	50	44.0	88	70-143	
Bromochloromethane	ug/kg	50	45.3	91	74-141	
Bromodichloromethane	ug/kg	50	44.8	90	68-125	
Bromoform	ug/kg	50	43.3	87	65-140	
Bromomethane	ug/kg	50	40.9	82	41-148	
Carbon disulfide	ug/kg	100	81.8	82	72-138	
Carbon tetrachloride	ug/kg	50	42.7	85	57-146	
Chlorobenzene	ug/kg	50	42.9	86	65-133	
Chloroethane	ug/kg	50	44.1	88	48-143	
Chloroform	ug/kg	50	45.6	91	72-138	
Chloromethane	ug/kg	50	36.4	73	41-147	
cis-1,2-Dichloroethene	ug/kg	50	43.4	87	71-142	
cis-1,3-Dichloropropene	ug/kg	50	45.3	91	69-129	
Dibromochloromethane	ug/kg	50	44.1	88	64-122	
Dibromomethane	ug/kg	50	44.9	90	68-147	
Dichlorodifluoromethane	ug/kg	50	29.0	58	18-147	
Diisopropyl ether	ug/kg	50	46.7	93	62-144	
Ethylbenzene	ug/kg	50	43.3	87	70-143	
Isopropylbenzene (Cumene)	ug/kg	50	43.8	88	65-140	
m&p-Xylene	ug/kg	100	86.5	86	80-120	
Methyl-tert-butyl ether	ug/kg	100	91.1	91	80-126	
Methylene Chloride	ug/kg	50	42.9	86	71-136	
n-Butylbenzene	ug/kg	50	42.1	84	46-179	
n-Propylbenzene	ug/kg	50	43.9	88	65-150	
Naphthalene	ug/kg	50	44.7	89	47-167	

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### QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

LABORATORY CONTROL SAMPLE: 20273

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
o-Xylene	ug/kg	50	43.3	87	70-141	
p-Isopropyltoluene	ug/kg	50	43.5	87	70-134	
sec-Butylbenzene	ug/kg	50	42.6	85	70-141	
Styrene	ug/kg	50	45.7	91	68-134	
tert-Butylbenzene	ug/kg	50	45.0	90	66-142	
Tetrachloroethene	ug/kg	50	37.7	75	59-144	
Toluene	ug/kg	50	42.9	86	62-142	
trans-1,2-Dichloroethene	ug/kg	50	45.7	91	71-138	
trans-1,3-Dichloropropene	ug/kg	50	46.2	92	68-131	
Trichloroethene	ug/kg	50	41.4	83	65-152	
Trichlorofluoromethane	ug/kg	50	42.3	85	64-133	
Vinyl acetate	ug/kg	50	48.1	96	36-122	
Vinyl chloride	ug/kg	50	40.6	81	53-141	
Xylene (Total)	ug/kg	150	130	87	61-122	
1,2-Dichloroethane-d4 (S)	%			106	69-133	
4-Bromofluorobenzene (S)	%			105	77-124	
Dibromofluoromethane (S)	%			108	73-114	
Toluene-d8 (S)	%			105	85-109	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 20274

20275

Parameter	Units	263689005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/kg	ND	58.3	54.7	53.4	49.4	92	90	30-131	8	26
1,1,1-Trichloroethane	ug/kg	ND	58.3	54.7	57.8	53.2	99	97	42-146	8	25
1,1,2,2-Tetrachloroethane	ug/kg	ND	58.3	54.7	51.4	45.6	88	83	25-144	12	18
1,1,2-Trichloroethane	ug/kg	ND	58.3	54.7	53.8	49.7	92	91	52-130	8	26
1,1-Dichloroethane	ug/kg	ND	58.3	54.7	58.8	53.5	101	98	52-145	9	24
1,1-Dichloroethene	ug/kg	ND	58.3	54.7	56.1	52.3	96	96	39-154	7	27
1,1-Dichloropropene	ug/kg	ND	58.3	54.7	52.4	48.7	90	89	45-137	7	26
1,2,3-Trichlorobenzene	ug/kg	ND	58.3	54.7	56.5	50.4	97	92	32-136	11	21
1,2,3-Trichloropropane	ug/kg	ND	58.3	54.7	46.1	42.4	79	77	26-154	8	34
1,2,4-Trichlorobenzene	ug/kg	ND	58.3	54.7	58.6	53.4	100	97	21-130	9	28
1,2,4-Trimethylbenzene	ug/kg	ND	58.3	54.7	52.8	48.1	90	87	13-152	9	31
1,2-Dibromo-3-chloropropane	ug/kg	ND	58.3	54.7	43.7	38.5	75	70	42-120	13	81
1,2-Dibromoethane (EDB)	ug/kg	ND	58.3	54.7	52.6	48.1	90	88	39-139	9	29
1,2-Dichlorobenzene	ug/kg	ND	58.3	54.7	55.3	49.8	95	91	10-182	10	64
1,2-Dichloroethane	ug/kg	ND	58.3	54.7	51.2	47.9	88	87	58-118	7	23
1,2-Dichloropropane	ug/kg	ND	58.3	54.7	58.4	52.2	100	95	51-136	11	24
1,3,5-Trimethylbenzene	ug/kg	ND	58.3	54.7	58.4	53.5	100	98	22-146	9	31
1,3-Dichlorobenzene	ug/kg	ND	58.3	54.7	57.1	51.4	98	94	15-161	10	42
1,3-Dichloropropane	ug/kg	ND	58.3	54.7	54.9	50.1	94	91	45-134	9	27
1,4-Dichlorobenzene	ug/kg	ND	58.3	54.7	55.5	50.7	95	93	15-164	9	36
2,2-Dichloropropane	ug/kg	ND	58.3	54.7	54.8	50.8	94	93	29-149	8	27

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## QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		20274	20275									
Parameter	Units	263689005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
2-Butanone (MEK)	ug/kg	ND	117	109	79J	70.8J	65	61	22-158		30	
2-Chlorotoluene	ug/kg	ND	58.3	54.7	59.2	52.6	102	96	16-156	12	33	
2-Hexanone	ug/kg	ND	117	109	79.7	69.1	68	63	10-198	14	50	
4-Chlorotoluene	ug/kg	ND	58.3	54.7	56.3	51.4	97	94	11-151	9	35	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	117	109	85.3	78.3	73	71	29-135	9	33	
Acetone	ug/kg	107	117	109	79.2J	68.3J	-24	-35	59-136		27	M1
Acrolein	ug/kg	ND	117	109	88.3	86.4	76	79	23-177	2	22	
Acrylonitrile	ug/kg	ND	233	219	170	158	73	72	38-130	7	23	
Benzene	ug/kg	ND	58.3	54.7	55.9	52.1	96	95	42-140	7	25	
Bromobenzene	ug/kg	ND	58.3	54.7	55.6	51.0	95	93	18-156	9	34	
Bromochloromethane	ug/kg	ND	58.3	54.7	53.3	50.1	91	92	59-127	6	22	
Bromodichloromethane	ug/kg	ND	58.3	54.7	56.2	51.3	97	94	39-123	9	24	
Bromoform	ug/kg	ND	58.3	54.7	46.7	41.6	80	76	30-136	12	22	
Bromomethane	ug/kg	ND	58.3	54.7	54.5	50.7	94	93	10-164	7	31	
Carbon disulfide	ug/kg	ND	117	109	101	94.1	87	86	55-135	7	24	
Carbon tetrachloride	ug/kg	ND	58.3	54.7	53.2	49.7	91	91	33-136	7	27	
Chlorobenzene	ug/kg	ND	58.3	54.7	53.6	49.1	92	90	28-144	9	31	
Chloroethane	ug/kg	ND	58.3	54.7	47.1	45.3	81	83	10-163	4	30	
Chloroform	ug/kg	ND	58.3	54.7	56.4	51.8	97	95	52-131	8	23	
Chloromethane	ug/kg	ND	58.3	54.7	50.1	47.5	86	87	28-149	5	28	
cis-1,2-Dichloroethene	ug/kg	ND	58.3	54.7	54.2	49.9	93	91	50-134	8	23	
cis-1,3-Dichloropropene	ug/kg	ND	58.3	54.7	57.4	51.8	98	95	39-125	10	28	
Dibromochloromethane	ug/kg	ND	58.3	54.7	51.9	47.1	89	86	32-118	10	29	
Dibromomethane	ug/kg	ND	58.3	54.7	53.4	48.8	92	89	50-133	9	22	
Dichlorodifluoromethane	ug/kg	ND	58.3	54.7	42.8	41.0	73	75	10-158	4	44	
Diisopropyl ether	ug/kg	ND	58.3	54.7	57.7	54.9	99	100	44-135	5	29	
Ethylbenzene	ug/kg	ND	58.3	54.7	54.7	50.0	94	91	13-164	9	33	
Isopropylbenzene (Cumene)	ug/kg	ND	58.3	54.7	51.8	47.7	89	87	13-156	8	33	
m&p-Xylene	ug/kg	ND	117	109	111	102	95	93	34-120	8	100	
Methyl-tert-butyl ether	ug/kg	ND	117	109	104	95.8	89	87	73-131	8	36	
Methylene Chloride	ug/kg	ND	58.3	54.7	54.0	49.9	93	91	53-138	8	26	
n-Butylbenzene	ug/kg	ND	58.3	54.7	53.6	48.2	92	88	21-161	11	34	
n-Propylbenzene	ug/kg	ND	58.3	54.7	57.6	51.9	99	95	16-158	11	34	
Naphthalene	ug/kg	ND	58.3	54.7	50.5	44.3	87	81	31-150	13	30	
o-Xylene	ug/kg	ND	58.3	54.7	56.6	51.5	97	94	13-160	10	29	
p-Isopropyltoluene	ug/kg	ND	58.3	54.7	52.5	47.7	90	87	10-164	10	33	
sec-Butylbenzene	ug/kg	ND	58.3	54.7	53.2	48.1	91	88	12-164	10	34	
Styrene	ug/kg	ND	58.3	54.7	58.3	53.3	100	97	16-151	9	33	
tert-Butylbenzene	ug/kg	ND	58.3	54.7	52.0	47.5	89	87	10-160	9	33	
Tetrachloroethene	ug/kg	ND	58.3	54.7	47.5	42.9	81	78	33-141	10	32	
Toluene	ug/kg	ND	58.3	54.7	54.5	49.6	93	90	32-145	9	31	
trans-1,2-Dichloroethene	ug/kg	ND	58.3	54.7	58.5	53.7	100	98	43-144	9	26	
trans-1,3-Dichloropropene	ug/kg	ND	58.3	54.7	57.6	52.2	99	95	30-130	10	33	
Trichloroethene	ug/kg	ND	58.3	54.7	50.3	46.1	86	84	16-172	9	30	
Trichlorofluoromethane	ug/kg	ND	58.3	54.7	51.1	47.6	88	87	14-149	7	32	

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### QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:			20274		20275							
Parameter	Units	263689005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Max RPD	Qual
Vinyl acetate	ug/kg	ND	58.3	54.7	51.9	47.8	89	87	10-120	8	74	
Vinyl chloride	ug/kg	ND	58.3	54.7	49.9	44.7	86	82	40-140	11	28	
Xylene (Total)	ug/kg	ND	174	165	167	153	96	93	19-120	9	28	
1,2-Dichloroethane-d4 (S)	%						98	102	69-133			
4-Bromofluorobenzene (S)	%						104	104	77-124			
Dibromofluoromethane (S)	%						106	107	73-114			
Toluene-d8 (S)	%						105	105	85-109			

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### QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

QC Batch: 4059 Analysis Method: EPA 8260B  
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV  
Associated Lab Samples: 263723003, 263723004, 263723005, 263723006, 263723007

METHOD BLANK: 20321 Matrix: Water  
Associated Lab Samples: 263723003, 263723004, 263723005, 263723006, 263723007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	04/10/18 11:17	
1,1,1-Trichloroethane	ug/L	ND	1.0	04/10/18 11:17	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	04/10/18 11:17	
1,1,2-Trichloroethane	ug/L	ND	1.0	04/10/18 11:17	
1,1-Dichloroethane	ug/L	ND	1.0	04/10/18 11:17	
1,1-Dichloroethene	ug/L	ND	1.0	04/10/18 11:17	
1,1-Dichloropropene	ug/L	ND	1.0	04/10/18 11:17	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	04/10/18 11:17	
1,2,3-Trichloropropane	ug/L	ND	1.0	04/10/18 11:17	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	04/10/18 11:17	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	04/10/18 11:17	
1,2-Dibromoethane (EDB)	ug/L	ND	2.0	04/10/18 11:17	
1,2-Dichlorobenzene	ug/L	ND	1.0	04/10/18 11:17	
1,2-Dichloroethane	ug/L	ND	1.0	04/10/18 11:17	
1,2-Dichloropropane	ug/L	ND	1.0	04/10/18 11:17	
1,3-Dichlorobenzene	ug/L	ND	1.0	04/10/18 11:17	
1,3-Dichloropropane	ug/L	ND	1.0	04/10/18 11:17	
1,4-Dichlorobenzene	ug/L	ND	1.0	04/10/18 11:17	
2,2-Dichloropropane	ug/L	ND	1.0	04/10/18 11:17	
2-Butanone (MEK)	ug/L	ND	5.0	04/10/18 11:17	
2-Chlorotoluene	ug/L	ND	1.0	04/10/18 11:17	
2-Hexanone	ug/L	ND	5.0	04/10/18 11:17	
4-Chlorotoluene	ug/L	ND	1.0	04/10/18 11:17	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	04/10/18 11:17	
Acetone	ug/L	ND	25.0	04/10/18 11:17	
Benzene	ug/L	ND	1.0	04/10/18 11:17	
Bromobenzene	ug/L	ND	1.0	04/10/18 11:17	
Bromochloromethane	ug/L	ND	1.0	04/10/18 11:17	
Bromodichloromethane	ug/L	ND	1.0	04/10/18 11:17	
Bromoform	ug/L	ND	1.0	04/10/18 11:17	
Bromomethane	ug/L	ND	2.0	04/10/18 11:17	
Carbon tetrachloride	ug/L	ND	1.0	04/10/18 11:17	
Chlorobenzene	ug/L	ND	1.0	04/10/18 11:17	
Chloroethane	ug/L	ND	1.0	04/10/18 11:17	
Chloroform	ug/L	ND	1.0	04/10/18 11:17	
Chloromethane	ug/L	ND	1.0	04/10/18 11:17	
cis-1,2-Dichloroethene	ug/L	ND	1.0	04/10/18 11:17	
cis-1,3-Dichloropropene	ug/L	ND	1.0	04/10/18 11:17	
Dibromochloromethane	ug/L	ND	1.0	04/10/18 11:17	
Dibromomethane	ug/L	ND	1.0	04/10/18 11:17	
Dichlorodifluoromethane	ug/L	ND	1.0	04/10/18 11:17	

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## QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

METHOD BLANK: 20321 Matrix: Water  
Associated Lab Samples: 263723003, 263723004, 263723005, 263723006, 263723007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	10.0	04/10/18 11:17	
Ethylbenzene	ug/L	ND	1.0	04/10/18 11:17	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	04/10/18 11:17	
m&p-Xylene	ug/L	ND	1.0	04/10/18 11:17	
Methyl-tert-butyl ether	ug/L	ND	10.0	04/10/18 11:17	
Methylene Chloride	ug/L	ND	1.0	04/10/18 11:17	
Naphthalene	ug/L	ND	1.0	04/10/18 11:17	
o-Xylene	ug/L	ND	1.0	04/10/18 11:17	
p-Isopropyltoluene	ug/L	ND	1.0	04/10/18 11:17	
Styrene	ug/L	ND	1.0	04/10/18 11:17	
Tetrachloroethene	ug/L	ND	1.0	04/10/18 11:17	
Toluene	ug/L	ND	1.0	04/10/18 11:17	
trans-1,2-Dichloroethene	ug/L	ND	1.0	04/10/18 11:17	
trans-1,3-Dichloropropene	ug/L	ND	1.0	04/10/18 11:17	
Trichloroethene	ug/L	ND	1.0	04/10/18 11:17	
Trichlorofluoromethane	ug/L	ND	1.0	04/10/18 11:17	
Vinyl acetate	ug/L	ND	2.0	04/10/18 11:17	
Vinyl chloride	ug/L	ND	1.0	04/10/18 11:17	
Xylene (Total)	ug/L	ND	2.0	04/10/18 11:17	
1,2-Dichloroethane-d4 (S)	%	116	81-119	04/10/18 11:17	
Bromofluorobenzene (S)	%	103	82-120	04/10/18 11:17	
Dibromofluoromethane (S)	%	102	82-114	04/10/18 11:17	
Toluene-d8 (S)	%	101	82-109	04/10/18 11:17	

LABORATORY CONTROL SAMPLE: 20322

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	44.4	89	68-137	
1,1,1-Trichloroethane	ug/L	50	49.2	98	72-134	
1,1,2,2-Tetrachloroethane	ug/L	50	43.2	86	51-158	
1,1,2-Trichloroethane	ug/L	50	44.6	89	78-131	
1,1-Dichloroethane	ug/L	50	46.8	94	69-151	
1,1-Dichloroethene	ug/L	50	44.4	89	64-158	
1,1-Dichloropropene	ug/L	50	43.5	87	70-133	
1,2,3-Trichlorobenzene	ug/L	50	45.5	91	73-130	
1,2,3-Trichloropropane	ug/L	50	40.6	81	78-133	
1,2,4-Trichlorobenzene	ug/L	50	46.0	92	51-163	
1,2-Dibromo-3-chloropropane	ug/L	50	46.5	93	58-124	
1,2-Dibromoethane (EDB)	ug/L	50	49.3	99	71-134	
1,2-Dichlorobenzene	ug/L	50	44.3	89	70-135	
1,2-Dichloroethane	ug/L	50	48.5	97	72-129	
1,2-Dichloropropane	ug/L	50	41.3	83	64-135	
1,3-Dichlorobenzene	ug/L	50	44.7	89	71-134	
1,3-Dichloropropane	ug/L	50	49.1	98	70-140	

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

LABORATORY CONTROL SAMPLE: 20322

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	ug/L	50	43.4	87	70-131	
2,2-Dichloropropane	ug/L	50	44.2	88	34-170	
2-Butanone (MEK)	ug/L	100	69.7	70	52-143	
2-Chlorotoluene	ug/L	50	44.5	89	77-128	
2-Hexanone	ug/L	100	79.2	79	61-136	
4-Chlorotoluene	ug/L	50	42.9	86	79-126	
4-Methyl-2-pentanone (MIBK)	ug/L	100	87.6	88	71-129	
Acetone	ug/L	100	65.4	65	48-224	
Benzene	ug/L	50	44.8	90	68-132	
Bromobenzene	ug/L	50	42.8	86	75-122	
Bromochloromethane	ug/L	50	50.9	102	73-133	
Bromodichloromethane	ug/L	50	42.2	84	67-121	
Bromoform	ug/L	50	43.5	87	57-125	
Bromomethane	ug/L	50	46.5	93	35-156	
Carbon tetrachloride	ug/L	50	46.5	93	66-122	
Chlorobenzene	ug/L	50	44.1	88	71-126	
Chloroethane	ug/L	50	38.4	77	43-143	
Chloroform	ug/L	50	48.4	97	71-136	
Chloromethane	ug/L	50	41.8	84	47-123	
cis-1,2-Dichloroethene	ug/L	50	47.1	94	74-131	
cis-1,3-Dichloropropene	ug/L	50	43.3	87	78-120	
Dibromochloromethane	ug/L	50	45.6	91	65-115	
Dibromomethane	ug/L	50	46.9	94	79-129	
Dichlorodifluoromethane	ug/L	50	37.0	74	29-124	
Diisopropyl ether	ug/L	50	44.0	88	70-130	
Ethylbenzene	ug/L	50	44.3	89	68-129	
Hexachloro-1,3-butadiene	ug/L	50	48.3	97	58-142	
m&p-Xylene	ug/L	100	91.9	92	67-137	
Methyl-tert-butyl ether	ug/L	100	98.9	99	59-130	
Methylene Chloride	ug/L	50	51.2	102	61-147	
Naphthalene	ug/L	50	47.9	96	48-144	
o-Xylene	ug/L	50	46.8	94	52-141	
p-Isopropyltoluene	ug/L	50	39.6	79	58-137	
Styrene	ug/L	50	45.3	91	77-128	
Tetrachloroethene	ug/L	50	37.5	75	51-139	
Toluene	ug/L	50	43.3	87	60-133	
trans-1,2-Dichloroethene	ug/L	50	51.8	104	69-144	
trans-1,3-Dichloropropene	ug/L	50	44.3	89	74-128	
Trichloroethene	ug/L	50	41.6	83	73-126	
Trichlorofluoromethane	ug/L	50	47.2	94	55-132	
Vinyl acetate	ug/L	50	47.4	95	52-141	
Vinyl chloride	ug/L	50	39.9	80	50-133	
Xylene (Total)	ug/L	150	139	92	78-132	
1,2-Dichloroethane-d4 (S)	%			113	81-119	
4-Bromofluorobenzene (S)	%			103	82-120	
Dibromofluoromethane (S)	%			108	82-114	
Toluene-d8 (S)	%			102	82-109	

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## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 20323					20324								
Parameter	Units	263489017	MS	MSD	MS	MSD	MS	MSD	% Rec	% Rec	Max		Qual
		Result	Spike Conc.	Spike Conc.							Result	Result	
1,1,1,2-Tetrachloroethane	ug/L	ND	50	50	46.6	48.9	93	98	68-137	5	11		
1,1,1-Trichloroethane	ug/L	ND	50	50	58.2	57.7	116	115	66-142	1	11		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	44.5	48.4	89	97	39-171	8	13		
1,1,2-Trichloroethane	ug/L	ND	50	50	50.8	50.6	102	101	73-136	0	12		
1,1-Dichloroethane	ug/L	ND	50	50	51.7	52.4	103	105	66-155	1	15		
1,1-Dichloroethene	ug/L	ND	50	50	59.1	61.1	115	119	33-181	3	34		
1,1-Dichloropropene	ug/L	ND	50	50	54.1	54.4	108	109	70-133	1	12		
1,2,3-Trichlorobenzene	ug/L	ND	50	50	41.8	49.7	84	99	73-130	17	22		
1,2,3-Trichloropropane	ug/L	ND	50	50	40.3	42.8	81	86	78-133	6	14		
1,2,4-Trichlorobenzene	ug/L	ND	50	50	42.2	49.3	84	99	44-164	16	13 R1		
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	44.1	48.6	88	97	58-124	10	15		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	55.8	56.6	112	113	71-134	1	12		
1,2-Dichlorobenzene	ug/L	ND	50	50	45.0	48.0	90	96	69-135	6	10		
1,2-Dichloroethane	ug/L	ND	50	50	53.5	54.9	107	110	36-159	3	10		
1,2-Dichloropropane	ug/L	ND	50	50	46.2	47.3	92	95	68-132	2	11		
1,3-Dichlorobenzene	ug/L	ND	50	50	44.7	49.4	89	99	68-135	10	10		
1,3-Dichloropropane	ug/L	ND	50	50	55.9	56.6	112	113	70-138	1	10		
1,4-Dichlorobenzene	ug/L	ND	50	50	43.1	46.4	86	93	49-153	7	9		
2,2-Dichloropropane	ug/L	ND	50	50	43.8	43.8	88	88	34-170	0	9		
Butanone (MEK)	ug/L	ND	100	100	81.4	82.7	81	83	10-189	2	23		
Chlorotoluene	ug/L	ND	50	50	46.1	49.3	92	99	77-128	7	10		
2-Hexanone	ug/L	ND	100	100	89.1	90.5	89	91	40-135	2	18		
4-Chlorotoluene	ug/L	ND	50	50	45.7	47.8	91	96	79-126	5	10		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	98.6	101	99	101	30-177	3	10		
Acetone	ug/L	ND	100	100	62.8	65.7	63	66	44-223	4	14		
Benzene	ug/L	ND	50	50	50.4	51.2	101	102	66-139	2	10		
Bromobenzene	ug/L	ND	50	50	44.6	47.0	89	94	75-122	5	12		
Bromochloromethane	ug/L	ND	50	50	54.5	55.1	109	110	73-133	1	13		
Bromodichloromethane	ug/L	ND	50	50	46.2	47.4	92	95	57-120	2	13		
Bromoform	ug/L	ND	50	50	42.5	44.8	85	90	48-128	5	13		
Bromomethane	ug/L	ND	50	50	41.1	46.0	82	92	10-187	11	32		
Carbon tetrachloride	ug/L	ND	50	50	54.5	56.1	109	112	58-127	3	14		
Chlorobenzene	ug/L	ND	50	50	46.8	48.7	94	97	63-137	4	10		
Chloroethane	ug/L	ND	50	50	43.5	43.9	87	88	52-146	1	16		
Chloroform	ug/L	ND	50	50	54.2	54.3	108	109	74-137	0	9		
Chloromethane	ug/L	ND	50	50	44.7	46.9	89	94	41-127	5	10		
cis-1,2-Dichloroethene	ug/L	ND	50	50	49.9	51.2	100	102	71-138	3	16		
cis-1,3-Dichloropropene	ug/L	ND	50	50	46.5	46.4	93	93	32-145	0	12		
Dibromochloromethane	ug/L	ND	50	50	49.3	49.2	99	98	52-116	0	13		
Dibromomethane	ug/L	ND	50	50	50.7	52.6	101	105	79-129	4	14		
Dichlorodifluoromethane	ug/L	ND	50	50	60.0	61.5	120	123	36-126	2	15		
Diisopropyl ether	ug/L	ND	50	50	46.4	48.2	93	96	70-130	4	20		
Ethylbenzene	ug/L	ND	50	50	48.6	50.4	97	101	31-174	4	10		
Hexachloro-1,3-butadiene	ug/L	ND	50	50	46.4	54.5	93	109	58-142	16	11 R1		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

		20323			20324								
Parameter	Units	263489017	MS	MSD	MS	MSD	MS	MSD	% Rec	% Rec	Max		
		Result	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual	
m&p-Xylene	ug/L	ND	100	100	99.8	103	100	103	27-179	4	10		
Methyl-tert-butyl ether	ug/L	ND	100	100	105	108	105	108	38-120	3	12		
Methylene Chloride	ug/L	ND	50	50	53.9	54.8	108	110	61-146	2	15		
Naphthalene	ug/L	ND	50	50	45.4	52.1	91	104	25-159	14	14		
o-Xylene	ug/L	ND	50	50	50.1	52.0	100	104	52-141	4	65		
p-Isopropyltoluene	ug/L	ND	50	50	40.0	44.2	80	88	59-134	10	9 R1		
Styrene	ug/L	ND	50	50	46.0	47.8	92	96	77-128	4	14		
Tetrachloroethene	ug/L	ND	50	50	43.9	44.7	88	89	36-155	2	14		
Toluene	ug/L	ND	50	50	50.3	50.5	100	101	52-146	0	11		
trans-1,2-Dichloroethene	ug/L	ND	50	50	58.5	59.4	117	119	61-152	2	14		
trans-1,3-Dichloropropane	ug/L	ND	50	50	47.2	47.9	94	96	37-146	2	12		
Trichloroethene	ug/L	ND	50	50	48.6	49.0	97	98	61-141	1	12		
Trichlorofluoromethane	ug/L	ND	50	50	71.8	71.9	144	144	51-141	0	13 M1		
Vinyl acetate	ug/L	ND	50	50	45.0	46.0	90	92	52-141	2	14		
Vinyl chloride	ug/L	ND	50	50	49.0	52.6	98	105	22-156	7	26		
Xylene (Total)	ug/L	ND	150	150	150	155	100	104	78-132	4	7		
1,2-Dichloroethane-d4 (S)	%						113	113	81-119				
4-Bromofluorobenzene (S)	%						104	105	82-120				
Dibromofluoromethane (S)	%						109	110	82-114				
Toluene-d8 (S)	%						97	100	82-109				

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### QUALITY CONTROL DATA

Project: Ryan Williams  
Pace Project No.: 263723

QC Batch: 4087      Analysis Method: Pace SOP #204  
QC Batch Method: Pace SOP #204      Analysis Description: Dry Weight/Percent Moisture  
Associated Lab Samples: 263723001, 263723002

SAMPLE DUPLICATE: 20380

Parameter	Units	92378985041 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	39.0	39.2	1	10	

SAMPLE DUPLICATE: 20488

Parameter	Units	263730001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.3	11.0	6	10	

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## QUALIFIERS

Project: Ryan Williams  
Pace Project No.: 263723

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.  
R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Ryan Williams  
Pace Project No.: 263723

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
263723001	SB-1	EPA 5035	4051	EPA 8260B	4066
263723002	SB-2	EPA 5035	4051	EPA 8260B	4066
263723003	SB-1	EPA 8260B	4059		
263723004	SB-2	EPA 8260B	4059		
263723005	SB-3	EPA 8260B	4059		
263723006	SB-4	EPA 8260B	4059		
263723007	Trip Blank	EPA 8260B	4059		
263723001	SB-1	Pace SOP #204	4087		
263723002	SB-2	Pace SOP #204	4087		

## REPORT OF LABORATORY ANALYSIS

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**Pace Analytical Services, LLC - Atlanta GA**  
1110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
(770) 734-4200 : FAX (770) 734-4201

PAGE: 1 OF 1

Rev. 12/15/2016

[illegible]

# Sample Condition Upon Receipt

Client Name: One Consulting

Project #

WO#: **263723**

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Commercial ☐ Pace Other

Tracking #:

PM: EDB

Due Date: 04/12/18

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals Intact: ☒ yes ☐ no

CLIENT: OneConsultin

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other

Thermometer Used

83

Type of Ice: Wat Blue None

☐ Samples on ice, cooling process has begun

Cooler Temperature

2.7

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/9/18 MR

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Includes date/time/ID/Analysis Matrix:	<u>SW</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: <u>VOA</u> , <u>coliform</u> , <u>TOC</u> , <u>O&amp;G</u> , <u>W-ORO</u> (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_

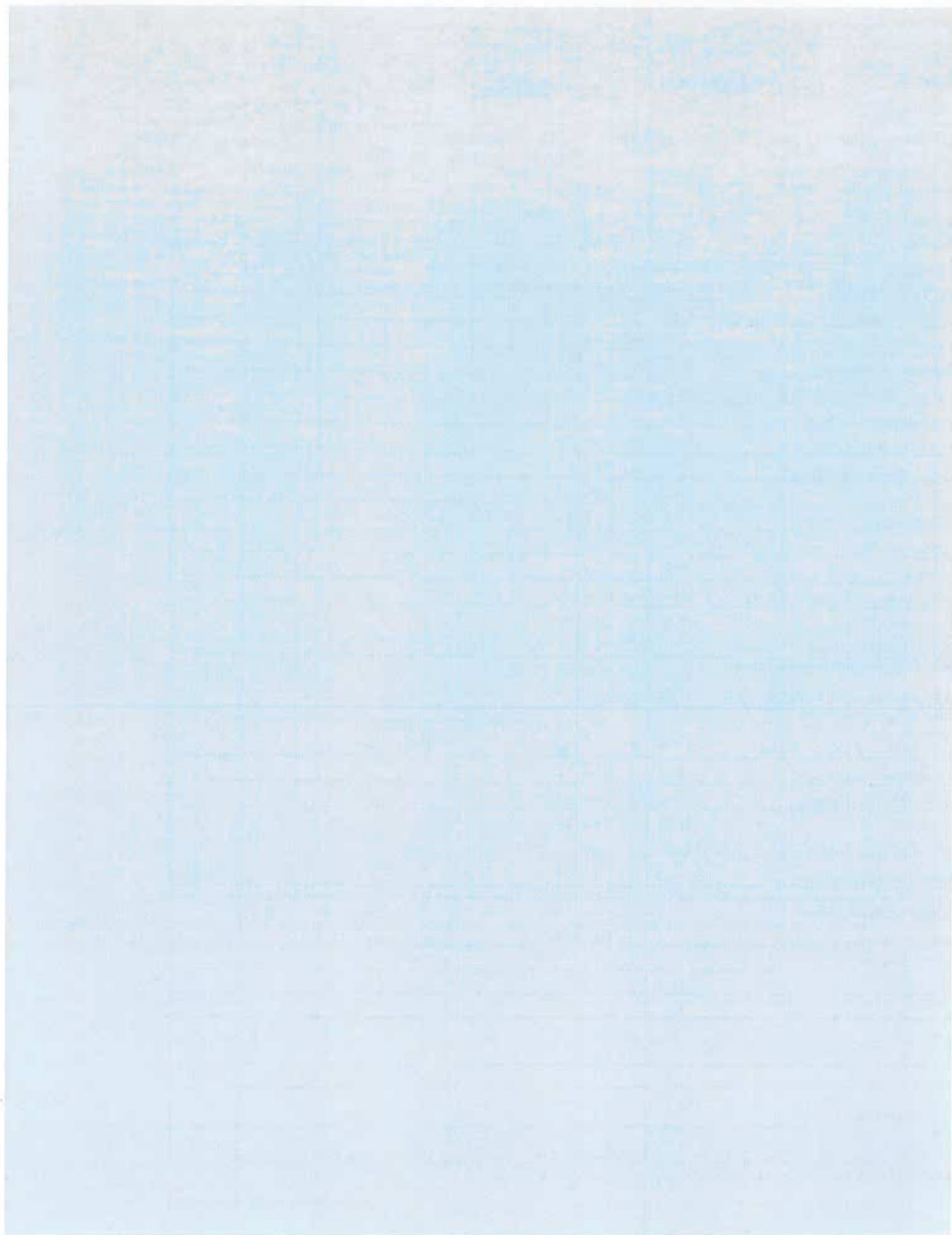
Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples a copy of this form will be sent to the North Carolina DEHNR Notification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

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## ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 29, 2017

Doug Strait  
Logic Environmental

3400 McClure Bridge Rd, Suite F602  
Duluth GA 30096

RE: J164 - Atlanta

Dear Doug Strait:

Order No: 1706N39

Analytical Environmental Services, Inc. received 9 samples on June 23, 2017 2:15 pm  
for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

-NELAC/Florida State Laboratory ID F87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/17-06/30/18.

State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective 07/01/17-06/30/18 and Total Coliforms and E. coli, effective 04/25/17-04/24/20.

-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/17-06/30/18.

-AIIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Mirzeta Kararic  
Project Manager



# ANALYTICAL ENVIRONMENTAL SERVICES, INC

3080 Presidential Drive, Atlanta GA 30340-3704

TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

## CHAIN OF CUSTODY

Work Order: 17000137

Date: 6/23/17 Page 1 of 1

<b>COMPANY:</b> Logistic Environmental 3400 McClure Br. Rd. Duluth, GA 30096		<b>ADDRESS:</b> 3400 McClure Br. Rd. Duluth, GA 30096		<b>ANALYSIS REQUESTED</b> VOC BTEX		<b>REMARKS</b> Visit our website <a href="http://www.aesatlanta.com">www.aesatlanta.com</a> to check on the status of your results, place bottle orders, etc.		<b>No. of Containers</b> 28	
<b>PHONE:</b> 770-817-0212		<b>FAX:</b>		<b>SAMPLED</b> DATE TIME 6/23/17 9:45 A 6/23/17 1:00 P " 11:00 A " 11:45 A " 12:30 P " 10:45 A " 11:30 A " 12:15 P		<b>PRESERVATION (See codes)</b>		<b>RECEIPT</b> Total # of Containers 28	
<b>SAMPLED BY:</b> Mike Twoby		<b>SIGNATURE:</b>		<b>DATE/TIME:</b> 6/23/17 2:15 P 6/23/17 2:15 P		<b>PROJECT NAME:</b> J164-Atlanta		<b>DATE/TIME:</b> 6/23/17 2:15 P	
<b>SAMPLE ID</b> B-1-12' B-2-8' B-3-8' B-4-10' B-5-12' B-1 B-3 B-4 Top Blank		<b>DATE/TIME:</b> 6/23/17 2:15 P 6/23/17 2:15 P		<b>DATE/TIME:</b> 6/23/17 2:15 P 6/23/17 2:15 P		<b>PROJECT #:</b>		<b>DATE/TIME:</b> 6/23/17 2:15 P	
<b>RELINQUISHED BY:</b>		<b>DATE/TIME:</b> 6/23/17 2:15 P 6/23/17 2:15 P		<b>DATE/TIME:</b> 6/23/17 2:15 P 6/23/17 2:15 P		<b>SITE ADDRESS:</b>		<b>DATE/TIME:</b> 6/23/17 2:15 P	
<b>SPECIAL INSTRUCTIONS/COMMENTS:</b> results to: mtwoby@logisenv.com dstrait		<b>SHIPMENT METHOD:</b> OUT 1 1 VIA: IN 1 1 VIA: CLIENT FedEx UPS MAIL COURIER GROUND		<b>SEND REPORT TO:</b>		<b>INVOICE TO:</b> (IF DIFFERENT FROM ABOVE)		<b>DATE/TIME:</b> 6/23/17 2:15 P	
<b>STATE PROGRAM (if any):</b>		<b>QUOTE #:</b>		<b>PO#:</b>		<b>DATE/TIME:</b> 6/23/17 2:15 P		<b>DATE/TIME:</b> 6/23/17 2:15 P	
<b>E-mail?</b>		<b>DATA PACKAGE:</b> 1 0 11 0 11 0 11 0		<b>DATE/TIME:</b> 6/23/17 2:15 P		<b>DATE/TIME:</b> 6/23/17 2:15 P		<b>DATE/TIME:</b> 6/23/17 2:15 P	

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY. IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GV = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None White Copy - Original; Yellow Copy - Client

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Analytical Environmental Services, Inc

Date: 29-Jun-17

Client:	Logic Environmental	Client Sample ID:	B-1-12'
Project Name:	J164 - Atlanta	Collection Date:	6/23/2017 9:45:00 AM
Lab ID:	1706N39-001	Matrix:	Solid

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>VOLATILE ORGANICS SW8260B</b>					(SW5035)			
Benzene	99	0.85		ug/Kg-dry	244723	1	06/27/2017 16:10	MD
Toluene	6.3	0.85		ug/Kg-dry	244723	1	06/27/2017 16:10	MD
Ethylbenzene	130	0.85		ug/Kg-dry	244723	1	06/27/2017 16:10	MD
m,p-Xylene	310	0.85		ug/Kg-dry	244723	1	06/27/2017 16:10	MD
o-Xylene	11	0.85		ug/Kg-dry	244723	1	06/27/2017 16:10	MD
Surr: 4-Bromofluorobenzene	118	63-125		%REC	244723	1	06/27/2017 16:10	MD
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	19.6	0		wt%	R346325	1	06/26/2017 14:00	VH

Qualifiers:

- Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- BB Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Lab ID: 1706N39-002

Client Sample ID: B-2-8'  
 Collection Date: 6/23/2017 1:00:00 PM  
 Matrix: Solid

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>VOLATILE ORGANICS SW8260B</b>					(SW5035)			
Benzene	1.5	0.79		ug/Kg-dry	244723	1	06/27/2017 14:04	MD
Toluene	BRL	0.79		ug/Kg-dry	244723	1	06/27/2017 14:04	MD
Ethylbenzene	1.3	0.79		ug/Kg-dry	244723	1	06/27/2017 14:04	MD
m,p-Xylene	1.5	0.79		ug/Kg-dry	244723	1	06/27/2017 14:04	MD
o-Xylene	BRL	0.79		ug/Kg-dry	244723	1	06/27/2017 14:04	MD
Surr: 4-Bromofluorobenzene	103	63-125		%REC	244723	1	06/27/2017 14:04	MD
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	14.7	0		wt%	R346325	1	06/26/2017 14:00	VH

## Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- 11 Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Lab ID: 1706N39-003

Client Sample ID: B-3-8'  
 Collection Date: 6/23/2017 11:00:00 AM  
 Matrix: Solid

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B		(SW5035)						
1,1,1-Trichloroethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,1,2,2-Tetrachloroethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,1,2-Trichloroethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,1-Dichloroethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,1-Dichloroethene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,2,4-Trichlorobenzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,2-Dibromo-3-chloropropane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,2-Dibromoethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,2-Dichlorobenzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,2-Dichloroethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,2-Dichloropropane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,3-Dichlorobenzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
1,4-Dichlorobenzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
2-Butanone	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
2-Hexanone	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
4-Methyl-2-pentanone	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Acetone	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Benzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Bromodichloromethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Bromoform	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Bromomethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Carbon disulfide	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Carbon tetrachloride	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Chlorobenzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Chloroethane	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Chloroform	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Chloromethane	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
cis-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
cis-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Cyclohexane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Dibromochloromethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Dichlorodifluoromethane	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Ethylbenzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Freon-113	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Isopropylbenzene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
m,p-Xylene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Methyl acetate	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Methyl tert-butyl ether	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Methylcyclohexane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Methylene chloride	BRL	18		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
o-Xylene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD

Qualifiers: \* Value exceeds maximum contaminant level  
 BRL Below reporting limit  
 H Holding times for preparation or analysis exceeded  
 N Analyte not NELAC certified  
 B Analyte detected in the associated method blank  
 > Greater than Result value

E Estimated (value above quantitation range)  
 S Spike Recovery outside limits due to matrix  
 Narr See case narrative  
 NC Not confirmed  
 < Less than Result value  
 J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Lab ID: 1706N39-003

Client Sample ID: B-3-8'  
 Collection Date: 6/23/2017 11:00:00 AM  
 Matrix: Solid

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>TCL VOLATILE ORGANICS SW8260B</b>					(SW5035)			
Styrene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Tetrachloroethene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Toluene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
trans-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
trans-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Trichloroethene	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Trichlorofluoromethane	BRL	4.4		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Vinyl chloride	BRL	8.8		ug/Kg-dry	244770	1	06/27/2017 18:31	MD
Surr: 4-Bromofluorobenzene	103	63-125		%REC	244770	1	06/27/2017 18:31	MD
Surr: Dibromofluoromethane	99.5	69.9-123		%REC	244770	1	06/27/2017 18:31	MD
Surr: Toluene-d8	100	70-122		%REC	244770	1	06/27/2017 18:31	MD
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	13.3	0		wt%	R346325	1	06/26/2017 14:00	VH

## Qualifiers:

- Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
Project Name: J164 - Atlanta  
Lab ID: 1706N39-004

Client Sample ID: B-4-10'  
Collection Date: 6/23/2017 11:45:00 AM  
Matrix: Solid

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>VOLATILE ORGANICS SW8260B</b>					(SW5035)			
Benzene	BRL	0.91		ug/Kg-dry	244723	1	06/27/2017 14:30	MD
Toluene	BRL	0.91		ug/Kg-dry	244723	1	06/27/2017 14:30	MD
Ethylbenzene	BRL	0.91		ug/Kg-dry	244723	1	06/27/2017 14:30	MD
m,p-Xylene	BRL	0.91		ug/Kg-dry	244723	1	06/27/2017 14:30	MD
o-Xylene	BRL	0.91		ug/Kg-dry	244723	1	06/27/2017 14:30	MD
Surr: 4-Bromofluorobenzene	92.6	63-125		%REC	244723	1	06/27/2017 14:30	MD
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	13.7	0		wt%	R346325	1	06/26/2017 14:00	VH

## Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- EE Holding times for preparation or analysis exceeded
- N Analytic not NELAC certified
- B Analytic detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit



## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Lab ID: 1706N39-005

Client Sample ID: B-5-12  
 Collection Date: 6/23/2017 12:30:00 PM  
 Matrix: Solid

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
<b>VOLATILE ORGANICS SW8260B</b>					(SW5035)			
Benzene	BRL	0.89		ug/Kg-dry	244723	1	06/27/2017 15:43	MD
Toluene	BRL	0.89		ug/Kg-dry	244723	1	06/27/2017 15:43	MD
Ethylbenzene	BRL	0.89		ug/Kg-dry	244723	1	06/27/2017 15:43	MD
m,p-Xylene	BRL	0.89		ug/Kg-dry	244723	1	06/27/2017 15:43	MD
o-Xylene	BRL	0.89		ug/Kg-dry	244723	1	06/27/2017 15:43	MD
Surr: 4-Bromofluorobenzene	92.7	63-125		%REC	244723	1	06/27/2017 15:43	MD
<b>PERCENT MOISTURE D2216</b>								
Percent Moisture	17.8	0		wt%	R346325	1	06/26/2017 14:00	VII

## Qualifiers:

- Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
Project Name: J164 - Atlanta  
Lab ID: 1706N39-006

Client Sample ID: B-1  
Collection Date: 6/23/2017 10:45:00 AM  
Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOLATILE ORGANICS SW8260B					(SW5030B)			
Benzene	1800	100		ug/L	244696	100	06/26/2017 15:46	LJ
Toluene	2000	100		ug/L	244696	100	06/26/2017 15:46	LJ
Ethylbenzene	1000	100		ug/L	244696	100	06/26/2017 15:46	LJ
m,p-Xylene	3300	100		ug/L	244696	100	06/26/2017 15:46	LJ
o-Xylene	1200	100		ug/L	244696	100	06/26/2017 15:46	LJ
Surr: 4-Bromofluorobenzene	92.7	66.1-129		%REC	244696	100	06/26/2017 15:46	LJ

## Qualifiers:

- Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Lab ID: 1706N39-007

Client Sample ID: B-3  
 Collection Date: 6/23/2017 11:30:00 AM  
 Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B					(SW5030B)			
1,1,1-Trichloroethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,1,2-Trichloroethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,1-Dichloroethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,1-Dichloroethene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,2-Dibromoethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,2-Dichlorobenzene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,2-Dichloroethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,2-Dichloropropane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,3-Dichlorobenzene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
1,4-Dichlorobenzene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
2-Butanone	BRL	50		ug/L	244682	1	06/28/2017 11:50	LJ
2-Hexanone	97	10		ug/L	244682	1	06/28/2017 11:50	LJ
4-Methyl-2-pentanone	38	10		ug/L	244682	1	06/28/2017 11:50	LJ
Acetone	BRL	50		ug/L	244682	1	06/28/2017 11:50	LJ
Benzene	27	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Bromodichloromethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Bromoform	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Bromomethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Carbon disulfide	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Carbon tetrachloride	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Chlorobenzene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Chloroethane	BRL	10		ug/L	244682	1	06/28/2017 11:50	LJ
Chloroform	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Chloromethane	BRL	10		ug/L	244682	1	06/28/2017 11:50	LJ
cis-1,2-Dichloroethene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
cis-1,3-Dichloropropene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Cyclohexane	18	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Dibromochloromethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Dichlorodifluoromethane	BRL	10		ug/L	244682	1	06/28/2017 11:50	LJ
Ethylbenzene	410	50		ug/L	244682	10	06/28/2017 12:16	LJ
Freon-113	BRL	10		ug/L	244682	1	06/28/2017 11:50	LJ
Isopropylbenzene	30	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
m,p-Xylene	2200	50		ug/L	244682	10	06/28/2017 12:16	LJ
Methyl acetate	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Methyl tert-butyl ether	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Methyleyclohexane	25	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Methylene chloride	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
o-Xylene	1300	50		ug/L	244682	10	06/28/2017 12:16	LJ

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- 11 Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Lab ID: 1706N39-007

Client Sample ID: B-3  
 Collection Date: 6/23/2017 11:30:00 AM  
 Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
Styrene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Tetrachloroethene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Toluene	300	50		ug/L	244682	10	06/28/2017 12:16	LJ
trans-1,2-Dichloroethene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
trans-1,3-Dichloropropene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Trichloroethene	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Trichlorofluoromethane	BRL	5.0		ug/L	244682	1	06/28/2017 11:50	LJ
Vinyl chloride	BRL	2.0		ug/L	244682	1	06/28/2017 11:50	LJ
Surr: 4-Bromofluorobenzene	97.1	66.1-129		%REC	244682	10	06/28/2017 12:16	LJ
Surr: 4-Bromofluorobenzene	106	66.1-129		%REC	244682	1	06/28/2017 11:50	LJ
Surr: Dibromofluoromethane	93.6	83.6-123		%REC	244682	1	06/28/2017 11:50	LJ
Surr: Dibromofluoromethane	96.5	83.6-123		%REC	244682	10	06/28/2017 12:16	LJ
Surr: Toluene-d8	102	81.8-118		%REC	244682	10	06/28/2017 12:16	LJ
Surr: Toluene-d8	105	81.8-118		%REC	244682	1	06/28/2017 11:50	LJ

## Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client:	Logic Environmental	Client Sample ID:	B-4
Project Name:	J164 - Atlanta	Collection Date:	6/23/2017 1:15:00 PM
Lab ID:	1706N39-008	Matrix:	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOLATILE ORGANICS SW8260B					(SW5030B)			
Benzene	BRL	1.0		ug/L	244696	1	06/27/2017 10:47	JE
Toluene	BRL	1.0		ug/L	244696	1	06/27/2017 10:47	JE
Ethylbenzene	BRL	1.0		ug/L	244696	1	06/27/2017 10:47	JE
m,p-Xylene	1.6	1.0		ug/L	244696	1	06/27/2017 10:47	JE
o-Xylene	1.6	1.0		ug/L	244696	1	06/27/2017 10:47	JE
Surr: 4-Bromofluorobenzene	93.9	66.1-129		%REC	244696	1	06/27/2017 10:47	JE

## Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAP certified
- fl Analyte detected in the associated method blank
- > Greater than Result value

- £ Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Lab ID: 1706N39-009

Client Sample ID: TRIP BLANK  
 Collection Date: 6/23/2017  
 Matrix: Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)				
1,1,1-Trichloroethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,1,2-Trichloroethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,1-Dichloroethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,1-Dichloroethene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,2-Dibromomethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,2-Dichlorobenzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,2-Dichloroethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,2-Dichloropropane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,3-Dichlorobenzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
1,4-Dichlorobenzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
2-Butanone	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
2-Hexanone	BRL	10		ug/L	244682	1	06/26/2017 17:47	LJ
4-Methyl-2-pentanone	BRL	10		ug/L	244682	1	06/26/2017 17:47	LJ
Acetone	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Benzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Bromodichloromethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Bromoform	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Bromomethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Carbon disulfide	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Carbon tetrachloride	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Chlorobenzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Chloroethane	BRL	10		ug/L	244682	1	06/26/2017 17:47	LJ
Chloroform	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Chloromethane	BRL	10		ug/L	244682	1	06/26/2017 17:47	LJ
cis-1,2-Dichloroethene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
cis-1,3-Dichloropropene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Cyclohexane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Dibromochloromethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Dichlorodifluoromethane	BRL	10		ug/L	244682	1	06/26/2017 17:47	LJ
Ethylbenzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Freon-113	BRL	10		ug/L	244682	1	06/26/2017 17:47	LJ
Isopropylbenzene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
m,p-Xylene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Methyl acetate	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Methyl tert-butyl ether	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Methylcyclohexane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Methylene chloride	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
o-Xylene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ

Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- II Holding times for preparation or analysis exceeded
- N Analyte not NELAP certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

## Analytical Environmental Services, Inc

Date: 29-Jun-17

Client:	Logic Environmental	Client Sample ID:	TRIP BLANK
Project Name:	J164 - Atlanta	Collection Date:	6/23/2017
Lab ID:	1706N39-009	Matrix:	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B					(SW5030B)			
Styrene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Tetrachloroethene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Toluene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
trans-1,2-Dichloroethene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
trans-1,3-Dichloropropene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Trichloroethene	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Trichlorofluoromethane	BRL	5.0		ug/L	244682	1	06/26/2017 17:47	LJ
Vinyl chloride	BRL	2.0		ug/L	244682	1	06/26/2017 17:47	LJ
Surr: 4-Bromofluorobenzene	90.2	66.1-129		%REC	244682	1	06/26/2017 17:47	LJ
Surr: Dibromofluoromethane	99.7	83.6-123		%REC	244682	1	06/26/2017 17:47	LJ
Surr: Toluene-d8	98.9	81.8-118		%REC	244682	1	06/26/2017 17:47	LJ

## Qualifiers:

- \* Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value

- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

SAMPLE/COOLER RECEIPT CHECKLIST

1706N39

AES Work Order Number:

1. Client Name: LOGIC ENVIRONMENTAL

2. Carrier: FedEx ☐ UPS ☐ USPS ☐ Client ☐ Courier ☐ Other ☐

	Yes	No	N/A	Details			Comments
3. Shipping container/cooler received in good condition?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	damaged <input type="checkbox"/>	leaking <input type="checkbox"/>	other <input type="checkbox"/>	
4. Custody seals present on shipping container?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>				
5. Custody seals intact on shipping container?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>				
6. Temperature blanks present?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>				
7. Cooler temperature(s) within limits of 0-8°C? [See item 13 and 14 for temperature recordings.]	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cooling initiated for recently collected samples / ice present <input type="checkbox"/>			
8. Chain of custody (COC) present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
9. Chain of custody signed, dated, and timed when relinquished and received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
10. Sampler name and/or signature on COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
11. Were all samples received within holding time?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
12. TAT marked on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. <input type="checkbox"/>			

13. Cooler 1 Temperature 1.3 °C Cooler 2 Temperature °C Cooler 3 Temperature °C Cooler 4 Temperature °C

14. Cooler 5 Temperature °C Cooler 6 Temperature °C Cooler 7 Temperature °C Cooler 8 Temperature °C

15. Comments:

I certify that I have completed sections 1-15 (dated initials).

MDP 6/23/17

	Yes	No	N/A	Details			Comments
16. Were sample containers intact upon receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
17. Custody seals present on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
18. Custody seals intact on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
19. Do sample container labels match the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	incomplete info <input type="checkbox"/> no label <input type="checkbox"/>	illegible <input type="checkbox"/>	other <input type="checkbox"/>	
20. Are analyses requested indicated on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
21. Were all of the samples listed on the COC received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	samples received but not listed on COC <input type="checkbox"/> samples listed on COC not received <input type="checkbox"/>			
22. Was the sample collection date/time noted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
23. Did we receive sufficient sample volume for indicated analyses?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
24. Were samples received in appropriate containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
25. Were VOA samples received without headspace (< 1/4" bubble)?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>				
26. Were trip blanks submitted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	listed on COC <input checked="" type="checkbox"/>	not listed on COC <input type="checkbox"/>		

27. Comments:

I certify that I have completed sections 16-27 (dated initials).

AJ 6/23/17

	Yes	No	N/A	Details			Comments
28. Have containers needing chemical preservation been checked?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>			CHECKED AT ANALYSIS	
29. Containers meet preservation guidelines?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>			CHECKED AT ANALYSIS	
30. Was pH adjusted?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>			CHECKED AT ANALYSIS	

I certify that I have completed sections 28-30 (dated initials).

AJ 6/23/17



# Analytical Environmental Services, Inc

Date: 29-Jun-17

Client: Logic Environmental  
Project Name: J164 - Atlanta  
Workorder: 1706N39

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244682

Sample ID: MB-244682	Client ID:	TCL VOLATILE ORGANICS		SW8260B	Units: ug/L	Prep Date: 06/26/2017	Run No: 346281				
Sample Type: MBLK	Test Code:				BatchID: 244682	Analysis Date: 06/26/2017	Seq No: 7604667				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1,1-Dichloroethane	BRL	5.0									
1,1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers: > Greater than Result value  
BRL Below reporting limit  
J Estimated value detected below Reporting Limit  
Rpt Lim Reporting Limit

< Less than Result value  
E Estimated (value above quantization range)  
N Analyte not NELAC certified  
S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
H Holding times for preparation or analysis exceeded  
R RPD outside limits due to matrix

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244682

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Workorder: 1706N39

Sample ID: MB-244682		Client ID:		Units: ug/L		Prep Date: 06/26/2017		Run No: 346281			
SampleType: MBLK		TestCode: TCL VOLATILE ORGANICS		BatchID: 244682		Analysis Date: 06/26/2017		Seq No: 7604667			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	5.0									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	42.84	0	50.00		85.7	66.1	129				
Surr: Dibromofluoromethane	49.18	0	50.00		98.4	83.6	123				
Surr: Toluene-d8	49.79	0	50.00		99.6	81.8	118				

Qualifiers:		<		Less than Result value		B	
>		Greater than Result value		E		H	
BRL		Below reporting limit		N		R	
J		Estimated value detected below Reporting Limit		S		Analyte detected in the associated method blank	
Rpt Lim		Reporting Limit				Holding times for preparation or analysis exceeded	
						RPD outside limits due to matrix	
						Spike Recovery outside limits due to matrix	

Client: Logic Environmental  
Project Name: J164 - Atlanta  
Workorder: 1706N39

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244682

Sample ID: LCS-244682	Client ID:	Units: ug/L	Prep Date: 06/26/2017	Run No: 346281							
Sample Type: LCS	Test Code: TCL VOLATILE ORGANICS	BatchID: 244682	Analysis Date: 06/26/2017	Seq No: 7604665							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	19.40	5.0	20.00		97.0	68	139				
Benzene	21.32	5.0	20.00		107	74	125				
Chlorobenzene	20.17	5.0	20.00		101	75.7	123				
Toluene	20.84	5.0	20.00		104	75.9	126				
Trichloroethene	18.80	5.0	20.00		94.0	70.6	129				
Surr: 4-Bromofluorobenzene	44.03	0	50.00		88.1	66.1	129				
Surr: Dibromofluoromethane	48.71	0	50.00		97.4	83.6	123				
Surr: Toluene-d8	49.24	0	50.00		98.5	81.8	118				

Sample ID: 1706N47-005AMS	Client ID:	Units: ug/L	Prep Date: 06/26/2017	Run No: 346475							
Sample Type: MS	Test Code: TCL VOLATILE ORGANICS	BatchID: 244682	Analysis Date: 06/28/2017	Seq No: 7609577							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	226.1	50	200.0		113	64.3	149				
Benzene	234.4	50	200.0		117	71.6	132				
Chlorobenzene	205.8	50	200.0		103	73.1	126				
Toluene	232.0	50	200.0		116	72.5	135				
Trichloroethene	213.1	50	200.0		107	70.2	132				
Surr: 4-Bromofluorobenzene	423.6	0	500.0		84.7	66.1	129				
Surr: Dibromofluoromethane	476.4	0	500.0		95.3	83.6	123				
Surr: Toluene-d8	499.2	0	500.0		99.8	81.8	118				

Sample ID: 1706N47-005AMSD	Client ID:	Units: ug/L	Prep Date: 06/26/2017	Run No: 346475							
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS	BatchID: 244682	Analysis Date: 06/28/2017	Seq No: 7609578							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	241.8	50	200.0		121	64.3	149	226.1	6.71	30.8	
Benzene	227.9	50	200.0		114	71.6	132	234.4	2.81	20.7	

Qualifiers: > Greater than Result value  
BRL Below reporting limit  
J Estimated value detected below Reporting Limit  
Rpt Lim Reporting Limit

< Less than Result value  
E Estimated (value above quantization range)  
N Analyte not NELAC certified  
S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
H Holding times for preparation or analysis exceeded  
R RPD outside limits due to matrix

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244682

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Workorder: 1706N39

Sample ID: 1706N47-005A		MSD	Client ID:	TCL VOLATILE ORGANICS		SW8360B	Units: ug/L	Prep Date: 06/26/2017	Run No: 346475		
Sample Type: MSD		Test Code:					Batch ID: 244682	Analysis Date: 06/28/2017	Seq No: 7609578		
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
Chlorobenzene	213.1	50	200.0		107	73.1	126	205.8	3.49	26.6	
Toluene	225.2	50	200.0		113	72.5	135	232.0	2.97	23.2	
Trichloroethene	198.1	50	200.0		99.0	70.2	132	213.1	7.30	27.7	
Surr: 4-Bromofluorobenzene	448.6	0	500.0		89.7	66.1	129	423.6	0	0	
Surr: Dibromofluoromethane	466.6	0	500.0		93.3	83.6	123	476.4	0	0	
Surr: Toluene-d8	490.0	0	500.0		98.0	81.8	118	499.2	0	0	

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

Client: Logic Environmental  
Project Name: J164 - Atlanta  
Workorder: 1706N39

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244696

Sample ID: MB-244696	Client ID:	Units: ug/L	Prep Date: 06/26/2017	Run No: 346365							
Sample Type: MBLK	TestCode: VOLATILE ORGANICS	BatchID: 244696	Analysis Date: 06/26/2017	Seq No: 7605348							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	50.90	0	50.00		102	66.1	129				

Sample ID: LCS-244696	Client ID:	Units: ug/L	Prep Date: 06/26/2017	Run No: 346365							
Sample Type: LCS	TestCode: VOLATILE ORGANICS	BatchID: 244696	Analysis Date: 06/26/2017	Seq No: 7605347							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Benzene	49.51	1.0	50.00		99.0	74	125				
Ethylbenzene	50.96	1.0	50.00		102	80.9	121				
m,p-Xylene	101.0	1.0	100.0		101	80.3	126				
o-Xylene	51.13	1.0	50.00		102	76.9	129				
Toluene	51.29	1.0	50.00		103	75.9	126				
Surr: 4-Bromofluorobenzene	47.04	0	50.00		94.1	66.1	129				

Sample ID: 1706N39-006AMS	Client ID: B-1	Units: ug/L	Prep Date: 06/26/2017	Run No: 346365							
SampleType: MS	TestCode: VOLATILE ORGANICS	BatchID: 244696	Analysis Date: 06/26/2017	Seq No: 7605363							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual

Benzene	6509	100	5000	1799	94.2	71.6	132				
Ethylbenzene	5633	100	5000	1006	92.5	81.2	130				
m,p-Xylene	12150	100	10000	3250	89.0	76	139				
o-Xylene	5883	100	5000	1159	94.5	76.8	137				
Toluene	6534	100	5000	2024	90.2	72.5	135				
Surr: 4-Bromofluorobenzene	4708	0	5000		94.2	66.1	129				

Qualifiers: > Greater than Result value  
BRL Below reporting limit  
J Estimated value detected below Reporting Limit  
Rpt Lim Reporting Limit

< Less than Result value  
E Estimated (value above quantization range)  
N Analyte not NELAC certified  
S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
H Holding times for preparation or analysis exceeded  
R RPD outside limits due to matrix

Client: Logic Environmental  
Project Name: J1164 - Atlanta  
Workorder: 1706N39

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244696

Sample ID: 1706N39-006AMSD	Client ID: B-1	Units: ug/L	Prep Date: 06/26/2017	Run No: 346365							
Sample Type: MSD	Test Code: VOLATILE ORGANICS	BatchID: 244696	Analysis Date: 06/26/2017	Seq No: 7605364							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Benzene	6557	100	5000	1799	95.2	71.6	132	6509	0.735	20.7	
Ethylbenzene	5745	100	5000	1006	94.8	81.2	130	5633	1.97	20	
m,p-Xylene	12210	100	10000	3250	89.6	76	139	12150	0.435	20	
o-Xylene	5850	100	5000	1159	93.8	76.8	137	5883	0.563	20	
Toluene	6614	100	5000	2024	91.8	72.5	135	6534	1.22	23.2	
Surr: 4-Bromofluorobenzene	4590	0	5000		91.8	66.1	129	4708	0	0	

<b>Qualifiers:</b>	>	Greater than Result value	<	Less than Result value	<b>B</b>	Analyte detected in the associated method blank
<b>BRL</b>		Below reporting limit	<b>E</b>	Estimated (value above quantitation range)	<b>H</b>	Holding times for preparation or analysis exceeded
<b>J</b>		Estimated value detected below Reporting Limit	<b>N</b>	Analyte not NELAC certified	<b>R</b>	RPD outside limits due to matrix
<b>Rpt Lim</b>		Reporting Limit	<b>S</b>	Spike Recovery outside limits due to matrix		

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Workorder: 1706N39

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244723

Sample ID: MB-244723	Client ID:	VOLATILE ORGANICS		SW8260B	Units:	ug/Kg	Prep Date:	06/27/2017	Run No:	346382	
Sample Type: MBLK	Test Code:				BatchID:	244723	Analysis Date:	06/27/2017	Seq No:	7606090	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Benzene BRL 1.0  
 Ethylbenzene BRL 1.0  
 m,p-Xylene BRL 1.0  
 o-Xylene BRL 1.0  
 Toluene BRL 1.0  
 Surr: 4-Bromofluorobenzene 44.38 0 50.00 88.8 63 125

Sample ID: LCS-244723	Client ID:	VOLATILE ORGANICS		SW8260B	Units: ug/Kg	Prep Date: 06/27/2017	Run No: 346382				
Sample Type: LCS	Test Code:				BatchID: 244723	Analysis Date: 06/27/2017	Seq No: 7607484				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Benzene 48.56 1.0 50.00 97.1 70.2 131  
 Ethylbenzene 49.86 1.0 50.00 99.7 74.6 130  
 m,p-Xylene 98.76 1.0 100.0 98.8 71.5 133  
 o-Xylene 48.14 1.0 50.00 96.3 73.1 130  
 Toluene 48.63 1.0 50.00 97.3 70.6 131  
 Surr: 4-Bromofluorobenzene 47.19 0 50.00 94.4 63 125

Sample ID: 1706P53-001AMS	Client ID:	VOLATILE ORGANICS	SW8260B	Units: ug/Kg-dry	Prep Date: 06/27/2017	Run No: 346382					
Sample Type: MS	Test Code:			BatchID: 244723	Analysis Date: 06/27/2017	Seq No: 7607496					
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Benzene 46.27 1.2 58.72 78.8 68.5 128  
 Ethylbenzene 44.84 1.2 58.72 76.4 65.5 136  
 m,p-Xylene 87.13 1.2 117.4 74.2 62.5 136  
 o-Xylene 44.66 1.2 58.72 76.1 68 129  
 Toluene 45.20 1.2 58.72 77.0 66.9 128  
 Surr: 4-Bromofluorobenzene 60.82 0 58.72 104 63 125

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit  
 < Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix  
 B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244723

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Workorder: 1706N39

Sample ID: 1706P53-001AMSD	Client ID:	Units: ug/Kg-dry	Prep Date: 06/27/2017	Run No: 346382							
SampleType: MSD	TestCode: VOLATILE ORGANICS	BatchID: 244723	Analysis Date: 06/28/2017	Seq No: 7607497							
Analyte	Result	RPT Limit	SPK value	SPK RefVal	%REC	Low Limit	High Limit	RPD RefVal	%RPD	RPD Limit	Qual
Benzene	48.48	1.2	58.72		82.6	68.5	128	46.27	4.66	20	
Ethylbenzene	45.65	1.2	58.72		77.7	65.5	136	44.84	1.79	20	
m,p-Xylene	87.61	1.2	117.4		74.6	62.5	136	87.13	0.551	20	
o-Xylene	44.85	1.2	58.72		76.4	68	129	44.66	0.420	20	
Toluene	46.45	1.2	58.72		79.1	66.9	128	45.20	2.72	20	
Surr: 4-Bromofluorobenzene	59.86	0	58.72		102	63	125	60.82	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		



Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Workorder: 1706N39

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244770

Sample ID: MB-244770	Client ID:	Units: ug/Kg	Prep Date: 06/27/2017	Run No: 346428							
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 244770	Analysis Date: 06/27/2017	Seq No: 7607458							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	100									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	10									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit		E	Estimated (value above quantization range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit		N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit		S	Spike Recovery outside limits due to matrix		

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244770

Client: Logic Environmental  
 Project Name: J164 - Atlanta  
 Workorder: 1706N39

Sample ID: MB-244770	Client ID:	Units: ug/Kg		Prep Date:	Run No: 346428						
Sample Type: MBLK	Test Code: TCL VOLATILE ORGANICS SW8240B	BatchID: 244770		Analysis Date: 06/27/2017	Seq No: 7607458						
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	20									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	10									
Surr: 4-Bromofluorobenzene	46.32	0	50.00		92.6	63	125				
Surr: Dibromofluoromethane	47.30	0	50.00		94.6	69.9	123				
Surr: Toluene-d8	51.73	0	50.00		103	70	122				

Qualifiers: > Greater than Result value  
 BRL Below reporting limit  
 J Estimated value detected below Reporting Limit  
 Rpt Lim Reporting Limit

< Less than Result value  
 E Estimated (value above quantitation range)  
 N Analyte not NELAC certified  
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside limits due to matrix

## ANALYTICAL QC SUMMARY REPORT

Client: Logic Environmental  
Project Name: J164 - Atlanta  
Workorder: 1706N39

BatchID: 244770

Sample ID: LCS-244770	Client ID:	Units: ug/Kg	Prep Date: 06/27/2017	Run No: 346428							
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 244770	Analysis Date: 06/27/2017	Seq No: 7607459							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	58.94	5.0	50.00		118	62	142				
Benzene	52.84	5.0	50.00		106	70.2	131				
Chlorobenzene	49.87	5.0	50.00		99.7	72.9	129				
Toluene	53.34	5.0	50.00		107	70.6	131				
Trichloroethene	50.02	5.0	50.00		100	70.1	136				
Surr: 4-Bromofluorobenzene	50.77	0	50.00		102	63	125				
Surr: Dibromofluoromethane	46.86	0	50.00		93.7	69.9	123				
Surr: Toluene-d8	49.90	0	50.00		99.8	70	122				

Sample ID: 1706N39-003AMS	Client ID: B-3-8'	Units: ug/Kg-dry	Prep Date: 06/27/2017	Run No: 346428							
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 244770	Analysis Date: 06/27/2017	Seq No: 7607461							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	55.03	5.8	57.64		95.5	55	143				
Benzene	53.60	5.8	57.64		93.0	68.5	128				
Chlorobenzene	50.86	5.8	57.64		88.2	67.7	126				
Toluene	53.08	5.8	57.64		92.1	66.9	128				
Trichloroethene	50.79	5.8	57.64		88.1	60.7	133				
Surr: 4-Bromofluorobenzene	52.74	0	57.64		91.5	63	125				
Surr: Dibromofluoromethane	51.46	0	57.64		89.3	69.9	123				
Surr: Toluene-d8	57.50	0	57.64		99.8	70	122				

Sample ID: 1706N39-003AMSD	Client ID: B-3-8'	Units: ug/Kg-dry	Prep Date: 06/27/2017	Run No: 346428							
Sample Type: MSD	Test Code: TCL VOLATILE ORGANICS SW8260B	BatchID: 244770	Analysis Date: 06/27/2017	Seq No: 7607462							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	54.62	5.8	57.64		94.8	55	143	55.03	0.757	19.3	
Benzene	54.43	5.8	57.64		94.4	68.5	128	53.60	1.54	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit		E	Estimated (value above quantization range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit		N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit		S	Spike Recovery outside limits due to matrix		

## Client:

Logic Environmental

## Project Name:

J164 - Atlanta

## Workorder:

1706N39

## ANALYTICAL QC SUMMARY REPORT

BatchID: 244770

Sample ID: 1706N39-003AMSD	Client ID: B-3-8'	Units: ug/Kg-dry	Prep Date: 06/27/2017	Run No: 346428							
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS	BatchID: 244770	Analysis Date: 06/27/2017	Seq No: 7607462							
		SW8260B									
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	51.16	5.8	57.64		88.8	67.7	126	50.86	0.588	20	
Toluene	54.35	5.8	57.64		94.3	66.9	128	53.08	2.36	20	
Trichloroethene	50.09	5.8	57.64		86.9	60.7	133	50.79	1.39	20	
Surr: 4-Bromofluorobenzene	52.08	0	57.64		90.4	63	125	52.74	0	0	
Surr: Dibromofluoromethane	51.46	0	57.64		89.3	69.9	123	51.46	0	0	
Surr: Toluene-d8	57.44	0	57.64		99.7	70	122	57.50	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

**APPENDIX VI**

**GROUNDWATER PROFESSIONAL CERTIFICATION**

## REGISTERED GROUNDWATER PROFESSIONAL CERTIFICATION

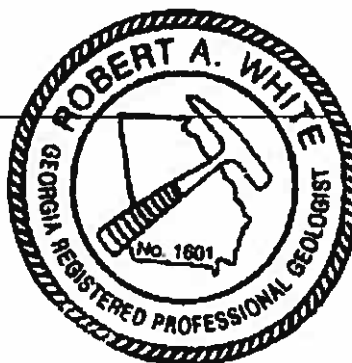
Subject: **Modified Phase II Subsurface Investigation  
Commercial Properties  
1326 Jonesboro Rd. SE, 0 McDonough Blvd. SE, & 105 McDonough Blvd. SE  
Atlanta, Fulton County, Georgia 30315  
One Group Project #A18023.02**

I certify that I am a qualified groundwater professional that has: received a baccalaureate degree for completion of accredited university courses; sufficient training and experience in groundwater hydrology and related fields; and state registration as a Registered Groundwater Professional. These criteria enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport.

I certify that this report was prepared by qualified subordinates working under my supervision.

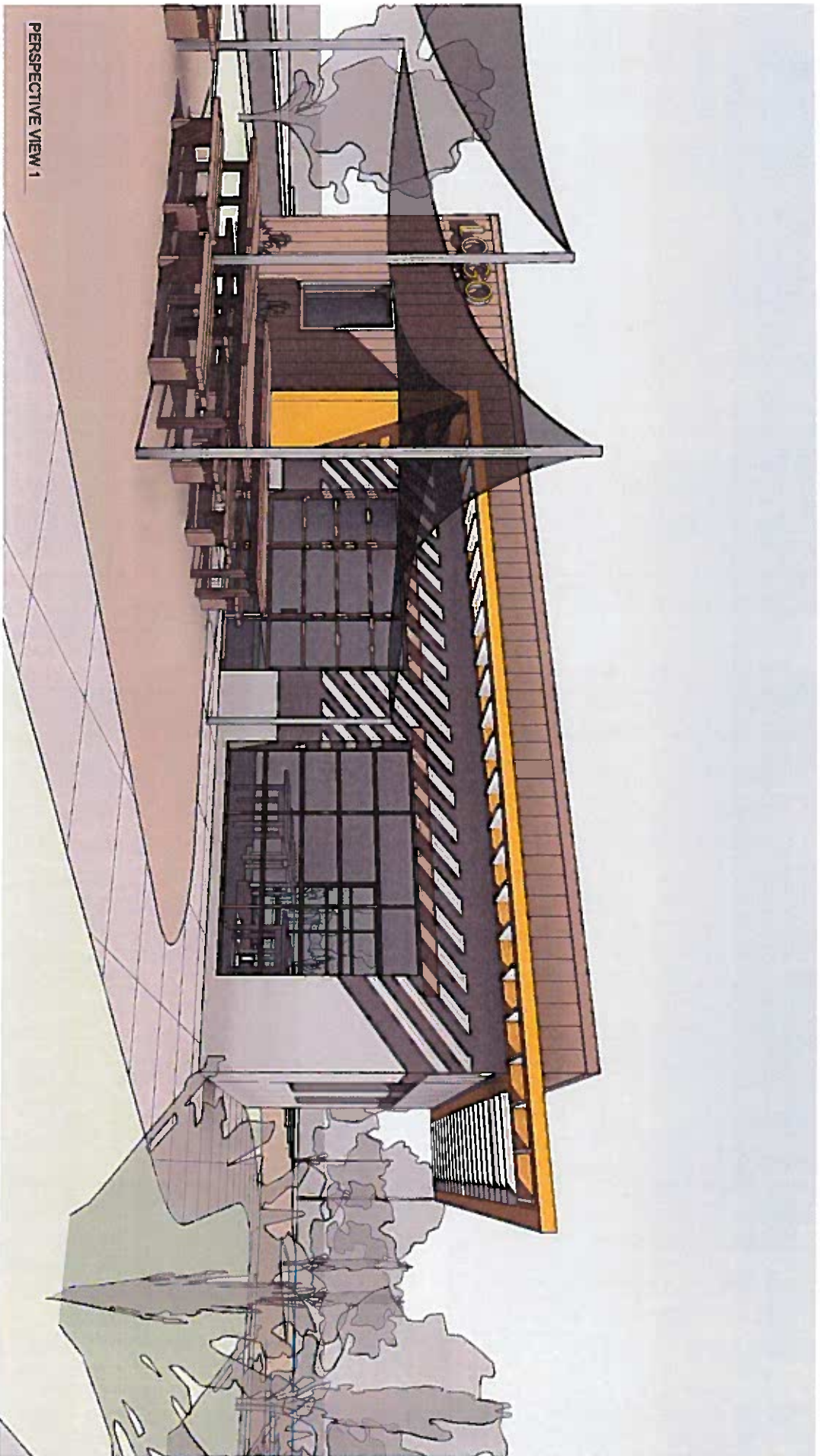


Robert A. White, Georgia Registered #1601



4/20/2018  
Date





PERSPECTIVE VIEW 1

## McDonough Blvd. Redevelopment

105 McDonough Blvd.

FCS Urban Ministries, Inc.

April 24, 2018  
FDA# 18006.00  
FOWLER DESIGN





**MCDONOUGH BLVD  
REDEVELOPMENT**

BUILD TO SUIT  
105 McDONOUGH BLVD. SE, ATLANTA, GA 30315

[illegible]



**TOTAL AREA**  
16,697 SQ. FT.  
0.384 ACRES

**#105 McDonough Blvd AREA**  
7,429 SQ. FT.  
0.171 ACRES

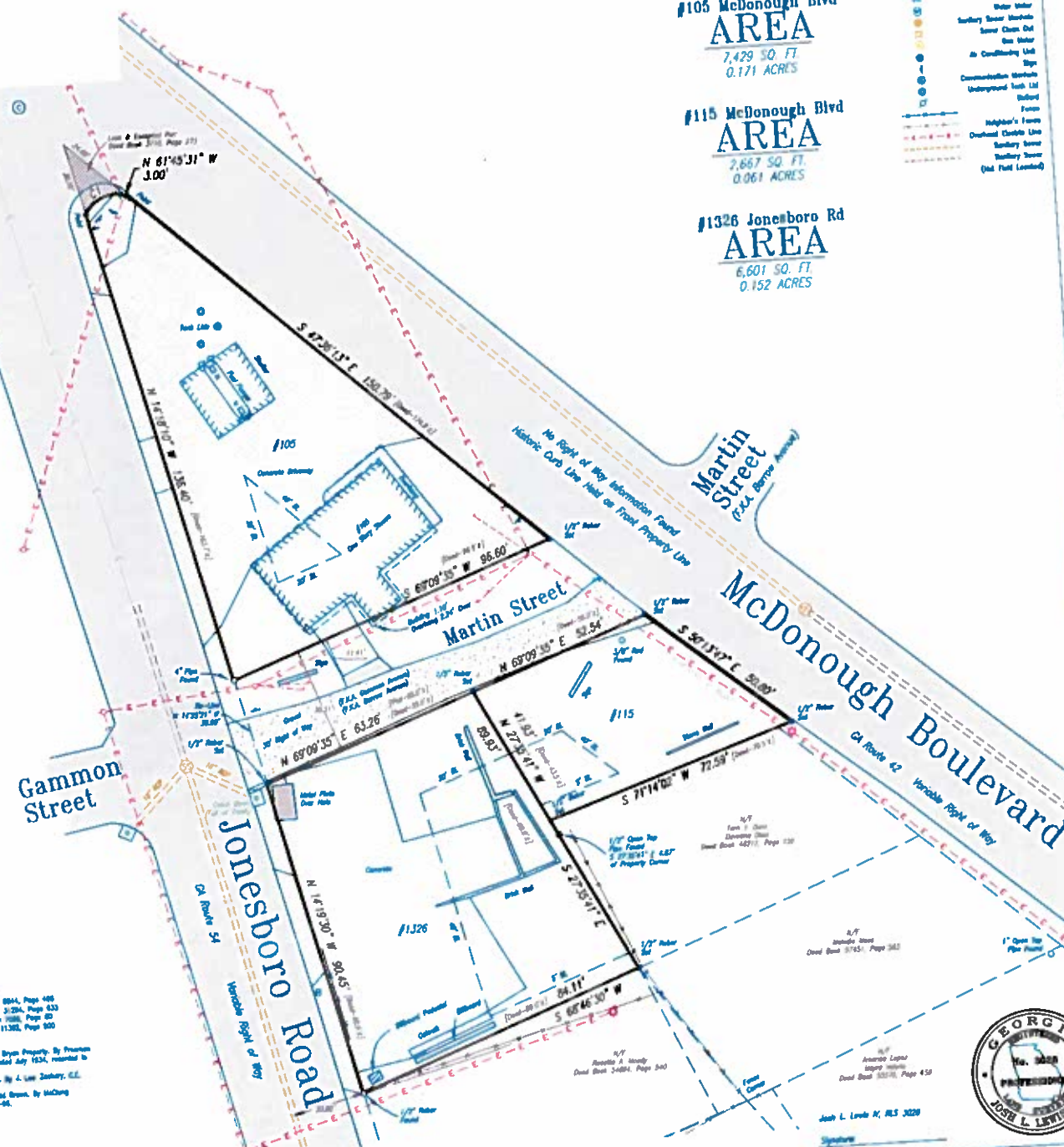
**#115 McDonough Blvd AREA**  
7,667 SQ. FT.  
0.061 ACRES

**#1326 Jonesboro Rd AREA**  
6,601 SQ. FT.  
0.152 ACRES

**LEGEND**

These standard symbols may be found in the drawing

- 1/4" Rubber Set
- 1/4" Pin Found
- Building Line
- Utility Line
- 1/4" Iron Nail
- 1/4" Wire Nail
- 1/4" Light Pole
- 1/4" Double Pole
- 1/4" Fire Hydrant
- 1/4" Water Meter
- 1/4" Sewer Manhole
- 1/4" Sewer Clean Out
- 1/4" Gas Meter
- 1/4" Air Conditioning Unit
- 1/4" Sign
- 1/4" Communication Structure
- 1/4" Underground Tank
- 1/4" Railroad
- 1/4" Fence
- 1/4" Highway's Fence
- 1/4" Overhead Double Line
- 1/4" Sanitary Sewer
- 1/4" Sanitary Sewer (Not Full Located)



**ADDITIONAL REFERENCES**  
#105 McDonough Blvd Deed Book 8844, Page 495  
#115 McDonough Blvd Deed Book 8844, Page 495  
#1326 Jonesboro Rd Deed Book 11302, Page 500  
Deed Book C-1, Page 625  
Part of Survey for Mrs. C.B. Bryan Property, By Freeman & Son, Inc., Surveyors, dated July 1934, recorded in Deed Book 8277, Page 474  
Sketch Plat for J.B. Turner, By A. Lee Jenkins, C.E., dated March 8, 1935  
Survey for Property of Donald Brown, By McKinnon Surveying, Inc., dated 3-15-66

**NOTES**  
(City of Atlanta)  
(3-1) EIGHT (8) (24' Adjacent to this Street)  
Front yard setback-24' (24' Adjacent to this Street)  
Side yard setback-5' (Adjacent to the Lot Line)  
Rear yard setback-None  
Note: Graphic location of utility lines are the interpretation of the Surveyor and should be verified with a utility official prior to design work.

**SURVEY NOTES**  
1. Equipment used: Leica 1200 robotic total station and Leica 550 data collector.  
2. Software used: Carlson Survey 2011 and Carlson Survey.

**CLOSURE STATEMENT**  
This field data used to compile this plat was gathered by robotic survey. This field data was collected by a professional surveyor of 5.1 feet, measurements and has a positional tolerance of 0.1 feet. This map or plat has been calculated for closure and is found to be accurate within one foot in 100,000+ feet.

**CURVE TABLE**

CURVE	ANGLE	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
1	115.80°	12.66'	11.29'	N 87°09'35" E	88.44°

155 CLIFTWOOD DRIVE - ATLANTA, GEORGIA 30328 - TELEPHONE: (404) 255-6671 - FAX: (404) 255-6607 - WWW.GEORGIALANDSURVEYING.COM

**FCS URBAN MINISTRIES, INC.**

DATE: 3/20/18 SCALE: 20'

REVISION	BY	DATE



**GEORGIA LAND SURVEYING CO.**  
EST 1966

DRAWING NUMBER  
F-3768  
198803

LAND LOT: 56	14th DISTRICT	SECTION	Fulton County, GA
LOT:	BLOCK:	UNIT:	PHASE:
SUBDIVISION	PARTY CHIEF: DR	FIELD DATE:	SHEET 1 of 1
PLAT BOOK	DRAWN BY: BMS	DATE: 3/30/18	
DEED BOOK			

THIS PLAT WAS PREPARED FOR THE EXCLUSIVE USE OF THE PERSON, PERSONS OR ENTITY NAMED HEREIN. THIS PLAT DOES NOT EXTEND TO ANY UNNAMED PERSON, PERSONS, OR ENTITY WITHOUT EXPRESS REPERCUSSION BY THE SURVEYOR NAMED LAND PERSON, PERSONS, OR ENTITY. ALL PASTING POST ADHESIVE TO TITLE ARE EXCEPTED.

Construction				Total Start Up	
General Conditions	25,000		Construction	212,500	
Sitework	10000		Finishes	0	
Concrete	3000		Kitchen	0	
Masonry	4000		Start-Up	0	
Carpentry & Millwork	3000				
Doors, Frames, Hardware	15000		Total Start Up	212,500	
Windows	1000				
Drywall, ACT, FRP	15,000				
Flooring	15000				
Painting Interior	12,000				
Painting Exterior	8000				
Specialties	1000				
Plumbing	10000				
Plumbing Fixtures	10000				
Fire Protection	500				
HVAC	20000				
Grease Trap	50000				
Gas Lines					
Electrical	10,000				



# Appendix D

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## Signed Eligibility Verification

**U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 4**  
**BROWNFIELDS SITE ELIGIBILITY DETERMINATION OUTLINE**

*To be used for determining site eligibility for Phase II Environmental Site Assessments and Cleanups.*

**A. GENERAL INFORMATION**

1. Grantee/Targeted Brownfields Assessment (TBA) Applicant Name: **City of Atlanta**
2. Grant/Applicant Type: Assessment, Cleanup, Revolving Loan Fund (RLF), Multipurpose, or TBA? **Assessment**  
If a Grant, provide the Grant Number: **BF-00D59517-0**
3. Work to be conducted: Assessment, Cleanup or Other **Assessment facilitated by underground storage tank (UST) removal**  
If other, please explain:
4. Provide the amount of funding estimated to be spent on the site: **\$25,000 - \$40,000 for UST removal (90% via the petroleum funds and 10% via the hazardous substance funds)**  
  
*(Assessments are limited to \$200,000 per site<sup>1</sup> unless a waiver is approved up to \$350,000. RLF subgrant cleanups are limited to \$200,000 per site. Multipurpose grant cleanups are limited to the amount in the EPA-approved budget.)*
5. Date of proposed work: **November – December 2018**
6. Name and title of person completing the form: **Douglas Strait, P.E., Project Manager with Cardno**
7. Date Submitted to EPA: **10/23/2018**

**B. BASIC SITE INFORMATION**

1. Site Name and ACRES ID if available: **105 McDonough Boulevard**
2. Site Address (and County): **105 McDonough Boulevard SE and 1326 Jonesboro Road SE, Atlanta, Fulton County, Georgia 30315.**
3. Name of the current owner of the site: **105 McDonough Blvd., LLC**

If the grantee/applicant does not own the site, describe their relationship with the owner, and the

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<sup>1</sup> Per the Cooperative Agreement Terms and Conditions, the Cooperative Agreement Recipient is responsible for ensuring that EPA's Brownfields assessment funding received under this cooperative agreement, or in combination with any other previously awarded Brownfields Assessment cooperative agreements does not exceed the \$200,000 funding limitation for an individual brownfield site. Waiver of this funding limit for a brownfield site must be approved by EPA prior to the expenditure of funding exceeding \$200,000. In no case may EPA funding exceed \$350,000 on a site receiving a waiver.

owner's role in the work to be performed: City of Atlanta has no direct relationship with the owner. The site is near the City's grant focus area, and would be a key property to act as a catalyst for redevelopment within the City's grant focus areas. Due to the findings of a Phase I and II ESA, the site was submitted into the Georgia Environmental Protection Division (EPD) Brownfield Cleanup Program. A UST removal is proposed to further the characterization of on-site contamination.

4. Identify the operational history and how the site became contaminated and to the extent possible describe the nature and extent of contamination. If the land has been vacant for many years, why does the grantee/applicant think that it is contaminated? 105 McDonough Boulevard historically was a gas station from 1958 to 2008 when it was vacated. Currently there are two 4,000-gallon gasoline UST, one 2,000-gallon gasoline UST, and two product dispensers remaining. The tanks were reportedly temporarily closed according to EPD records. In addition, a gas station was in operation at 1326 Jonesboro Road from 1940 to 1970.

A Phase II conducted in June 2017 by Logic Environmental, Inc. (Logic) identified petroleum contamination in the shallow soil and groundwater, primarily around the on-site USTs.

In April 2018, One Consulting Group (One Group) performed an additional Phase II ESA and identified petroleum and volatile organic compound (VOC) groundwater contamination, including tetrachloroethene (PCE). No soil contamination was identified during their investigation.

The USTs remain in the ground. Their removal will facilitate a review of potential impacts to soil and groundwater.

5. Identify the current use(s) of the site. Currently Vacant

#### **C. SITES NOT ELIGIBLE FOR FUNDING BY STATUTE**

1. Is the facility listed (or proposed for listing) on the National Priorities List?  
☐ YES ☒ NO
2. Is the facility subject to unilateral administrative orders, court orders, administrative orders on consent, or judicial consent decrees issued to or entered into by parties under CERCLA?  
☐ YES ☒ NO
3. Is the facility subject to the jurisdiction, custody, or control of the US government? (Land held in trust by the US government for an Indian tribe is eligible.)  
☐ YES ☒ NO

*If the answer is YES to any of the above (C.1-3) the property is **not** eligible, stop here.*

#### **D. SITES ONLY ELIGIBLE WITH A PROPERTY SPECIFIC DETERMINATION BY EPA:**



1. Is the site/facility subject to a planned or ongoing CERCLA removal action?  
☐ YES ☒ NO
2. Has the site/facility been the subject of a unilateral administrative order, court order, an administrative order on consent or judicial consent decree that has been issued to or entered into by the parties, or been issued a permit by the U.S. or an authorized state under the Solid Waste Disposal Act (as amended by the Resource Conservation and Recovery Act (RCRA)), the Federal Water Pollution Control Act (FWPCA), the Toxic Substances Control Act (TSCA), or the Safe Drinking Water Act (SWDA)?  
☐ YES ☒ NO
3. Is the site/facility subject to corrective action orders under RCRA (sections 3004(u) or 3008(h)) and has there been a corrective action permit or order issued or modified to require corrective measures?  
☐ YES ☒ NO
4. Is the site/facility a land disposal unit that has submitted a RCRA closure notification under subtitle C of RCRA and is subject to closure requirements specified in a closure plan or permit?  
☐ YES ☒ NO
5. Has the site/facility had a release of polychlorinated biphenyls (PCBs) that is subject to remediation under TSCA?  
☐ YES ☒ NO
6. Has the site/facility received funding for remediation from the leaking Underground Storage Tank (LUST) Trust Fund?  
☐ YES ☒ NO

*If the answer is YES to any of the above (D. 1-6), a property specific determination is required. The grantee/applicant must provide further explanation for why Brownfields financial assistance is needed and how it will protect human health and the environment **and** will either promote economic development **or** the creation of, preservation of, or addition to parks, greenways, undeveloped property, other recreational property, or other property used for nonprofit purposes.*

## **SITE CONTAMINATION TYPE – HAZARDOUS SUBSTANCE AND/OR PETROLEUM**

A site can have one of four conditions for purposes of Brownfields funding classifications – it may be a (1) hazardous substance site, (2) a petroleum site, (3) a site where there exists both hazardous substances and petroleum distributed in such a manner as to be too difficult to apportion the assessment or cleanup between the two media, and (4) a site containing both hazardous and petroleum where the contaminants are distinct and separate. These distinctions are important and determine which EPA Brownfields funds are legally permitted to be used in the assessment and/or cleanup processes.

1. A hazardous substances site can only be assessed and/or cleaned up using hazardous substance funds.  
 If the site is primarily contaminated with hazardous substances, **complete Section E**. There may also be some minimal petroleum contamination present. “Minimal” petroleum

contamination suggests there were no Underground or Above-ground Storage ST or AST installations at the property. There may be, or may have been, small hydraulic lifts used for automotive repair, or hydraulic elevators. Operations may have resulted in spills of small quantities of fuels, lubricating oils and there may be abandoned, oil-filled transformers or other oil-filled equipment at the site. The petroleum contamination is minimal and it does not matter if the nominal petroleum contamination is commingled or segregated, the site is a hazardous substance site and the grantee/applicant should **complete Section E. for Hazardous Substances sites.**

2. A petroleum site can only be assessed and/or cleaned up using petroleum funds.  
A site with unused petroleum product remaining in underground and/or aboveground tanks and/or where petroleum product has been released from tanks, drums, piping, dispensers, railcars, or tank trucks to the environment is a petroleum site and the grantee/applicant should **complete Section F.** This is typically the case where there are or have been AST or UST installations. There may also be some minimal hazardous substance contamination remaining on site. “Minimal” hazardous substance contamination suggests that former site operations did not include significant commercial or industrial processes that could have resulted in large quantities or widespread hazardous substance contamination. There may be relatively small quantities of hazardous substance contamination resulting from spilled cleaning solvents, lead-based paints, asbestos-containing materials such as floor tiles or dry wall joint compound, and so forth. It does not matter if the nominal hazardous substance contamination is commingled or segregated, the site is a petroleum site and the grantee/applicant should **complete Section F for Petroleum Contamination Sites**
3. A site containing both hazardous substances and petroleum contamination, where they are indivisible (or nearly so) for purposes of assessment and/or cleanup must be considered a hazardous substances site for purposes of funding and the grantee/applicant should **complete Section E.** This is often called a “commingled” site because the contaminants are commingled and not readily separated for purposes of assessment and/or cleanup.  
A commingled site is characterized by the presence of both hazardous substances and petroleum contaminants in such a manner that they cannot be readily separated for purposes of assessment and/or cleanup. This is often the case where the facility used or stored oil products and used or generated hazardous substances in relatively close proximity so that releases of these contaminants became more or less a common contaminant. These properties must be addressed as a hazardous substances site and the grantee/applicant should **complete Section E for Hazardous Substances Sites.**
4. And finally, a site where there are both hazardous substances and petroleum contamination but where the location and distribution of sources and contamination are distinct and lend themselves to ready assessment and/or cleanup is a site where both hazardous substances and petroleum funding can be used on their respective sources and contamination and the grantee/applicant should **complete both Sections E and F.**  
Many sites have experienced releases of hazardous substances and petroleum products but these releases may be separated by distance and/or by operations which took place at the facility. There may be an above ground tank farm on one portion of the site, underground storage tanks in another area, and hazardous substances handled or generated or released in

yet other areas. The point is that the contaminants are separate and may be assessed and/or cleaned up independent of one another. Grantees/applicants with a property where the contaminants are readily defined and segregable must **complete both sections E and F**.

5. Identify which type of known or suspected contamination is present (check one):
  - ☐ Hazardous Substances (Complete Section E) - this includes hazardous substance sites that may also have relatively insignificant petroleum contaminants present
  - ☐ Petroleum Contaminants (Complete Section F) - this includes petroleum sites that may also have relatively insignificant hazardous substances present
  - ☐ Hazardous Substances and Petroleum (Complete both Section E and F)
6. If the site is either ☐ Mine Scarred Lands or ☐ Controlled Substances skip to Section G.

#### **E. HAZARDOUS SUBSTANCE SITES** *(for Petroleum only sites, skip to F)*

Answer the following E.1-9 if the grantee/applicant is the current site owner. If the grantee/applicant does not own the site, skip to 10.

1. How was the property acquired?
  - ☐ Negotiated purchase ☐ Foreclosure ☐ Donation ☐ Eminent Domain
  - ☐ Other (Explain):
2. What is the date that the grantee/applicant acquired the property?
3. Provide the name/identity of the party from whom the grantee/applicant acquired ownership:
4. Provide information about any familial, contractual, corporate, or financial relationships or affiliations the grantee/applicant has or had with all prior owners or operators (or other potentially responsible parties) of the property:
5. Did all disposal of hazardous substances at the site occur before the grantee/applicant acquired the property? Did the grantee/applicant cause or contribute to any release of hazardous substances at the site? Did the grantee/applicant arrange for the disposal of hazardous substances or transport of hazardous substances to the site?
  - ☐ YES ☐ NO *If the answer is YES, the property is **not** eligible, stop here.*
6. Did the grantee/applicant take reasonable steps<sup>2</sup> with regards to the contamination at the site?
  - ☐ YES ☐ NO *If the answer is NO, the property is **not** eligible, stop here.*
7. Did the grantee/applicant take property ownership or control through seizure or otherwise in connection with law enforcement activity, or through bankruptcy, tax delinquency, abandonment, or other circumstances in which the government acquired title by virtue of its function as sovereign?

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<sup>2</sup> Reasonable steps for owners of brownfields are to stop continuing releases; prevent threatened future releases; and prevent or limit human, environmental, or natural resource exposure to earlier hazardous substance releases.

☐ YES ☐ NO

8. Did the grantee/applicant conduct a Phase I Environmental Site Assessment or All Appropriate Inquiry investigation in compliance with ASTM standards or other) prior to acquiring property?

☐ YES ☐ NO

9. If the grantee/applicant does not qualify as BFPP, but is a public entity, acquired the property prior to January 11, 2002, and did not cause or contribute to the contamination, the grantee/applicant can be eligible for an EPA brownfields grant. Does this situation apply?

☐ YES ☐ NO

*If the answer is NO to all three of the previous questions (7 – 9), the property is **not** eligible, stop here.*

Answer the following if the grantee/applicant is not the site owner:

10. Is the grantee/applicant potentially liable at the site as an ☐ Operator, ☐ Arranger ☐ Transporter?

☐ YES ☒ NO *If the answer is YES, the property is **not** eligible, stop here.*

11. Is the grantee/applicant affiliated with the site owner (familial, contractual, financial)?

☐ YES ☒ NO *If the answer is YES, this site requires discussion with your EPA Project Officer.*

## **F. PETROLEUM CONTAMINATION SITES**

If the state has made the petroleum eligibility determination, the grantee/applicant must provide EPA with the letter or email from the state. States may apply their own laws and regulations to petroleum eligibility determinations.

If the state was unable to make the determination, EPA will make the determination consistent with the most recent Proposal Guidelines for Brownfields Assessment or Cleanup Grants, based on the information provided by the grantee/applicant below.

1. Has the owner (regardless whether the site is owned by the grantee/applicant) acquired the site through tax foreclosure, abandonment, or equivalent government proceedings?

☐ YES ☒ NO

2. Has a responsible party been identified through?

a. a judgment rendered in a court of law or an administrative order that would require any party to assess, investigate, or cleanup the site;

☐ YES ☒ NO

b. an enforcement action brought by federal or state authorities that would require any party to assess, investigate, or cleanup the site;

☐ YES ☒ NO

c. a citizen suit, contribution action or other third party claim against the current or immediate past owner, that would, if successful, require that party to assess, investigate, or clean up the

site.

☐ YES ☒ NO

*If the answer is YES to question 1, and NO to questions 2 a-c, skip to question 7.*

3. Has the **current owner** done any of the following:

a. dispensed or disposed of petroleum or petroleum product at the site?

☐ YES ☒ NO

b. owned the property during the dispensing or disposal of petroleum product at the site?

☐ YES ☒ NO

c. exacerbated the contamination at the site?

☐ YES ☒ NO

d. did not take reasonable steps with regard to contamination at the site,

☐ YES ☒ NO

*If the answer is YES to any of these questions (3a – d), skip to question 6.*

4. Provide the name of the **immediate past owner**: **Herman L. Johnson**

Has the **immediate past owner** done any of the following:

a. dispensed or disposed of petroleum or petroleum product at the site?

☐ YES ☒ NO

b. owned the property during the dispensing or disposal of petroleum product at the site?

☐ YES ☒ NO

c. exacerbated the contamination at the site?

☐ YES ☒ NO

d. did not take reasonable steps with regard to contamination at the site,

☐ YES ☒ NO

*If the answer is YES to any of these questions (4a – d), skip to question 6.*

5. If the **grantee/applicant is not the current or immediate past owner**, has the grantee/applicant done any of the following:

a. dispensed or disposed of petroleum or petroleum product at the site, or owned the property during the dispensing or disposing of petroleum?

☐ YES ☒ NO

b. exacerbated the contamination at the site?

☐ YES ☒ NO

*If the answer is NO to any of these questions (5a – d), skip to question 7.*

6. While it has been determined there is a responsible party by answering YES to any of questions 3 -5 in this section, does the current/immediate owner or grantee/applicant have adequate financial resources to pay for assessment of the site (a viable party)?  
☐ YES ☒ NO *If YES, the site is not eligible. If "NO", provide an explanation for this conclusion.*
7. Is the site subject to a corrective action order issued under Resource Conservation and Recovery Act Section 9003(h) for releases from leaking underground storage tanks?  
☐ YES ☒ NO *If YES, the site is not eligible.*

#### **G. BROWNFIELDS DEFINITION**

Based on the information presented on this form, the grantee/applicant believes that the:

☒ Site meets the definition of an EPA Brownfields site

#### **H. ACCESS**

Does grantee/applicant have access or an access agreement for this property?

☒ YES ☐ NO

## I. SITE ELIGIBILITY DETERMINATION BY EPA PROJECT OFFICER

If there are any questions on eligibility the EPA Project Officer should consult with the Regional Brownfields Coordinator, and as necessary EPA legal counsel.

☒ SITE IS / ☐ SITE IS NOT eligible for EPA Brownfields Funds

*Derek Street*

\_\_\_\_\_  
EPA Project Officer

*10/25/2018*

\_\_\_\_\_  
Date:

## **Appendix E**

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### **GAEPD UST Closure Report Guidance Document**

### **EPA Regions 4 SOP SESDPROC-202-R3: Management of Investigation Derived Waste**



# UST Closure Report Guidance Document

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## A. INTRODUCTION

### I. PRIOR TO CLOSING A UST

Prior to closing a UST system, complete and submit a **Closure Activity Form (GUST 29)** to the Underground Storage Tank Management Program (USTMP). This form can be located at:

[https://epd.georgia.gov/sites/epd.georgia.gov/files/related\\_files/site\\_page/gust\\_29.pdf](https://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/gust_29.pdf)

A response from the USTMP is not needed in order to begin closure activities.

Contact the local fire marshal and the Utilities Protection Center before beginning a UST system closure. The fire marshal, and sometimes other local governmental agencies, have jurisdiction over UST's and may require their oversight during removal. State law requires contractors or owners to notify the Utilities Protection Center at 1-(800)-282-7411 at least 72 hours before digging. Contact your local government agency about construction permit requirements.

### II. CLOSURE PROCEDURES & QUALIFIED PERSONNEL

UST's may be permanently closed by removing them from the ground or by filling the empty tanks with an inert solid material, such as sand, a mixture of sand and soil, foam, or grout. The inert material must not react with the UST or its contents or allow leaching of residual petroleum from the UST. Foam is preferred because other materials make the tanks very heavy, making them difficult to remove if they have to be removed at a later date. In most cases, the EPD recommends removal of the entire UST (as an aside, the removal of UST's may facilitate real estate transactions). It is recommended that in-place closure should be reserved for situations in which a structure, such as the foundation of a building or roadway, would be jeopardized by removal of the UST(s). The closure of piping requires that contents be first flushed back into the tanks. If piping is to be closed in place, it should be capped at the ends. For additional guidance on closure of UST's, refer to 40 CFR Part 280.71. **Note: Water is not an inert solid material and cannot be used for in-place closure.**

Because of the inherent dangers in handling tanks (explosive vapors and potentially hazardous petroleum residuals), the EPD recommends that only **qualified** and **experienced** personnel close UST systems. Knowledge of and experience with EPA sampling procedures, industry standards, and OSHA regulations (29 CFR Part 1910 and Part 1926) are essential. Fatalities have resulted from mistakes made during tank closures. In addition, improper

handling of the material in the UST's and piping can result in releases that require costly cleanups.

It is the responsibility of the UST owner and/or operator to ensure that environmental sampling is conducted and that a UST Closure Report is completed & submitted to the EPD. Sampling should be conducted as soon as possible (the EPD recommends within 48 hours), and the UST Closure Report, along with all supporting documentation, should be submitted within 30 days of receiving the laboratory data. CLOSURE ACTIVITIES ARE NOT REIMBURSABLE.

## **B. THE CLOSURE REPORT FORM**

### **I. FACILITY, OWNER, AND CONTRACTOR INFORMATION**

It is imperative that Sections A, B, and C be filled out completely so that the USTMP may adequately review the UST Closure Report. The UST owner is the person(s) who actually owns the UST system at the time of closure. If the facility is in the process of being sold or there is a pending transfer of ownership, the UST owner should provide a mailing address other than the facility address. Original signatures are required. Selling the UST system after a release has been identified does not absolve the owner of his/her responsibility of corrective action.

In some cases, the facility may not be registered with the UST program. If this is the case, leave the Facility ID Number blank. However, complete and submit a tank registration form (**EPA 7530**) along with the completed UST Closure Report. This form is located at:

[https://epd.georgia.gov/sites/epd.georgia.gov/files/Form\\_7530.pdf](https://epd.georgia.gov/sites/epd.georgia.gov/files/Form_7530.pdf)

In the rare case that an individual other than the owner initiates closure activities, that individual should complete Section B. However, they should identify his/her relationship to the facility next to their printed name (i.e. land owner, broker, etc.)

If a contractor or consultant was used to collect environmental samples and/or complete the UST Closure Report, his/her contact information should be provided in Section C.

### **II. UST SYSTEM INFORMATION**

Complete Sections A, B, and C if any component of the UST system was closed. These sections are not required to be completed if the tank system was

previously removed and no specific information regarding the system is known. If this is the case, simply click the box above Section A and skip to Part III (Sampling and Analytical Requirements).

List all tanks recently closed and currently in use in Section A. It is not necessary to list tanks that were previously closed and have already received no further action (NFA) status. If any of the closed tanks contained more than one substance, it is necessary to list all substances that were stored in that tank. Sections B and C require information about both fuel lines and dispensers. If these components were not closed, answer only those questions that apply.

### III. SAMPLING & ANALYTICAL REQUIREMENTS

#### A. Tank Sampling

##### Sample Location

For all tanks removed from the ground, soil samples should be collected from native soil approximately two feet beneath the tank bottom, and at least one of the samples should be collected beneath the fill port end. For tanks closed in place, samples are to be collected as close to the tank as possible (at each end).

If bedrock is encountered during excavation activities, collect the appropriate number of samples just above bedrock (at the soil/bedrock interface).

##### Required Number of Samples (See Table 1)

For tanks closed in place, a minimum of two soil samples are required (one at each end). For tanks closed in-place that are greater than 12,500 gallons, one additional sample (collected adjacent to and beneath the middle of the tank) is required for every 10,000 gallons greater than 12,500 gallons. For tanks that are removed, one soil sample is required for tanks less than 1050 gallons, and two samples are required for tanks ranging from 1050 to 12,500 gallons. For tanks greater than 12,500 gallons, one additional soil sample (collected beneath the middle of the tank) is required for every 10,000 gallons greater than 12,500 gallons.

If groundwater is encountered in the excavation while removing the tanks or if groundwater samples are voluntarily collected, the number of required soil samples is reduced. **If groundwater is encountered in the excavation, a groundwater sample MUST be collected.** Groundwater sample(s) can be collected voluntarily by installing monitoring wells or using direct push technology. If groundwater is present, then only one soil

sample is required beneath each tank. In general, one groundwater sample can be collected from beneath a single tankpit. However, if the tankpit is very large and one groundwater sample will not adequately characterize the groundwater conditions beneath the tankpit, then two groundwater samples may be necessary. Groundwater samples should be collected beneath the most contaminated soils.

### Target Constituents & Analytical Methods (See Table 2)

For tanks that only stored gasoline, soil samples should be analyzed for BTEX (using EPA Method 5035-8021B or 5035-8260B) and TPH-GRO (using EPA Method 8015B-GRO). Groundwater samples should only be analyzed for BTEX (using EPA Method 5030-8021B or 5030-8260B).

For tanks that stored substances other than gasoline or if there is uncertainty as to what the tanks historically stored, soil samples should be analyzed for BTEX, PAH's (using EPA Method 8270C or 8310), TPH-GRO, and TPH-DRO (using EPA Method 8015B-DRO). Groundwater samples must be analyzed for BTEX and PAH's (using EPA Method 8270C).

In the rare case that a tank contained a substance other than a type of petroleum, the owner must define those target constituents and detection limits that would best determine if a release from the tank impacted the soil and/or groundwater.

Please note that method 8260B is preferred over method 8021B when analyzing samples for BTEX, and method 8270C is preferred over method 8310 when analyzing samples for PAH's. Using method 8021B and/or 8310 may result in the misidentification of compounds or matrix interference.

### Vertical Delineation

If any of the initial soil samples collected beneath a tank have detectable concentrations of BTEX, PAH's, or TPH-GRO/DRO, then sampling must continue vertically (at depth) until BTEX and PAH's are below detection limit and TPH-GRO/DRO is less than 10 mg/kg. When collecting delineation samples, it is not necessary to analyze for a constituent that was below detection limit in the initial soil sample(s). If PAH's were detected in the initial soil samples, but there is no applicable soil threshold for the PAH's detected, then delineation samples do not have to be analyzed for PAH's.

If groundwater is encountered before soil contamination can be delineated to below detection limits, then a groundwater sample must be collected. In lieu of collecting multiple soil samples for vertical delineation, a groundwater sample may be collected. In most cases, the collection of one groundwater sample beneath the tankpit eliminates the need for vertical delineation of soil contamination at all sampling locations within the tankpit. For example, if vertical delineation is required at three soil sampling locations within the tankpit, then only one groundwater sample would need to be collected (instead of 3 or more soil samples) in order to satisfy the requirements for vertical delineation of soil contamination. However, for a very large tankpit, two groundwater samples may be needed to adequately characterize groundwater conditions beneath the tankpit.

If bedrock is encountered when removing the tanks and the initial soil samples collected at the bedrock/soil interface have contamination above appropriate detection limits, a boring/monitoring well will need to be installed into bedrock. If groundwater is not encountered within 24 hours after drilling twenty (20) feet into bedrock, drilling may be stopped and the boring may be abandoned. The soil contamination is considered vertically delineated and no additional sampling is required. However, if groundwater is encountered within the first twenty (20) feet, it will be necessary to install a monitoring well and collect a groundwater sample.

#### Required Tank Sampling When UST Information is Not Available (System Previously Closed)

If the tankpit locations can be identified, then collect one soil sample and one groundwater sample from beneath each tankpit. If it is unclear where the tankpit(s) were located, then use all available resources to best determine where the tanks may have been located and collect the samples at the downgradient edge of each suspected tankpit. Soil samples should be collected above the water table and at the depth where PID/FID readings were the highest.

### **B/C. Piping & Dispenser Sampling**

#### Sample Location & Number of Samples (Table 1)

**\*\***For the discussion below, please note that a dispenser island can consist of a single dispenser or multiple dispensers connected in a series.

For UST systems in which the dispenser(s) are located over the tank(s), soil samples are usually not required beneath the piping or dispensers because the soil directly beneath the dispenser/piping will be removed

during excavation of the tanks. However, in the rare case that piping and/or a dispenser island are the only components closed above an active tank, it will be necessary to collect soil samples as close to dispenser/piping as possible. One or two soil samples will usually be sufficient.

If the dispensers are not located over the tanks, then piping and dispenser samples will be necessary. One soil sample is required for every 25 feet of closed piping, and one soil sample is required 25 feet of contiguous dispenser island. Samples should be collected from **native soil** and at worst-case locations (joints, elbows, fittings, visible contamination, etc.).

### Target Constituents & Analytical Methods (Table 2)

If the piping and/or dispenser island was associated with gasoline only tank(s), soil samples should be analyzed for BTEX (using EPA Method 5035-8021B or 5035-8260B) and TPH-GRO (using EPA Method 8015B-GRO). Groundwater samples should only be analyzed for BTEX (using EPA Method 5030-8021B or 5030-8260B).

If the piping and/or dispenser island was associated with tanks containing substances other than gasoline, soil samples should be analyzed for BTEX, PAH's (using EPA Method 8270C or 8310), TPH-GRO, and TPH-DRO (using EPA Method 8015B-DRO). Groundwater samples must be analyzed for BTEX and PAH's (using EPA Method 8270C).

In the rare case that the piping/dispensers contained a substance other than a type of petroleum, the owner must define those target constituents and detection limits that would best determine if a release from the piping/dispensers impacted the soil and/or groundwater.

### Vertical Delineation

If any of the initial soil samples collected beneath the piping and/or dispensers have detectable concentrations of BTEX, PAH's, or TPH-GRO/DRO, then sampling must continue vertically (at depth) until BTEX and PAH's are below detection limit and TPH-GRO/DRO is less than 10 mg/kg. When collecting delineation samples, it is not necessary to analyze for a constituent that was below detection limit in the initial soil sample(s). If PAH's were detected in the initial soil samples, but there is no applicable soil threshold for the PAH's detected, then delineation samples do not have to be analyzed for PAH's.



In lieu of collecting multiple soil samples for vertical delineation, a groundwater sample may be collected at each location requiring vertical delineation. If any two sampling locations requiring vertical delineation are less than 25 feet apart, then the collection of one groundwater sample will suffice for the vertical delineation of soil contamination at both locations.

Required Dispenser Sampling When UST Information is Not Available (System Previously Closed)

If the UST system was previously removed but locations of the former dispenser islands can be determined, then collect one soil sample and one groundwater sample beneath each former dispenser island. If it is unclear where the former dispenser islands were located, then use all available resources to determine where they may have been located and collect one soil sample and one groundwater sample at the downgradient side of each suspected island. Soil samples should be collected above the water table and at the depth where PID/FID readings were the highest.

**D. Stockpile Sampling & Over-excavation**

Stockpile Sampling

One soil sample is required for every 200 cubic yards of stockpiled soil generated during closure activities. Samples should be analyzed for the same constituents as the tank, piping, and dispenser samples. The EPD does not recommend stockpiling soils on site for more than 90 days, and stockpiled soil should be placed in drums or wrapped in plastic sheeting.

Stockpiled soil can only be placed back into the excavation if one of the following criteria is met:

- a. the analytical results of samples from the stockpiled soil are less than the applicable Soil Threshold Levels, TPH-GRO or DRO is less than 10,000 mg/kg, and no visible free product is present in the soil. Please note that a water resource survey may be required (**see Appendix B**) in order to determine applicable Threshold Levels.
- b. the analytical results of samples from the stockpiled soil exceed applicable Threshold Levels, but a CAP-Part A/CAP-Part B will address in-situ remediation of the contaminated soil.\*
- c. Groundwater contamination has been identified above regulatory standards, and the CAP-Part A/CAP-Part B will address the in-situ remediation of the contaminated soil and groundwater.

\*In almost all cases, it is more advantageous (and usually cheaper) to properly dispose stockpiled soil exceeding applicable Threshold Levels at an EPD approved facility instead of completing and implementing a CAP-Part A/CAP-Part B addressing only soil remediation. If soil is disposed of at an EPD approved facility, then please attach disposal manifests to the UST Closure Report.

### Over-excavation

Over-excavation is defined as any soil excavation beyond three (3) feet from the outermost sides and ends of any UST, beyond one (1) foot from the bottom of the deepest UST, or beyond one (1) foot from the piping or dispensers. If more than one UST is present in the pit, and the UST's are laid side-by-side, measurement will extend from the sides of the outermost UST's and the ends of the UST's. If the UST's are laid end-to-end, measurement will extend from the ends of the outermost UST's and the sides of the UST's.

If over-excavation is performed in order to remove contaminated soil, then the following confirmatory samples must be collected in addition to the required tank, piping, and dispenser sampling:

- a. one soil sample every 30 linear feet along the base of the sides (within 1 foot of the bottom of the excavation)
- b. one soil sample per 200 square feet along the bottom of the excavation
- c. one soil sample per 200 cubic yards of stockpiled soil (see "Stockpile Sampling" above)

**Reimbursement for over-excavation will only be considered when it has been first proposed in a CAP-Part A/CAP-Part B and subsequently approved by the EPD. Otherwise, over-excavation will be considered part of the closure activities and WILL NOT BE REIMBURSED.**

## **E. Summary of Analytical Methods Used & Field Data**

For this section, simply check all analytical methods used on the closure samples collected. If Method 5035 was utilized, please indicate if the samples were collected using an Encore sampling device or if the samples were placed in 40mL preserved vials. Other sampling devices/containers (i.e. 4 oz jars, mason jars, or baggies) are not acceptable.

Follow both the laboratory's sampling directions and EPA's Region IV "Environmental Investigations Standard Operating Procedures & Quality Assurance Manual" when collecting environmental samples. If you are unfamiliar with environmental sampling or completing the UST Closure Report, the EPD highly recommends hiring a qualified environmental consultant to collect the closure samples and complete the UST Closure Report. If groundwater samples are collecting from a boring, a Professional Geologist or Professional Engineer must oversee the sampling and sign/seal the UST Closure Report.

ATTACH ALL ORIGINAL LABORATORY DATA, INCLUDING THE QUALITY CONTROL (QC) INFORMATION AND CHAIN OF CUSTODY, TO THE UST CLOSURE REPORT. ONLY AN ACCREDITED LABORATORY SHOULD ANALYZE ENVIRONMENTAL SAMPLES. THE LABORATORY SHOULD USE EPA SW-846 SPECIFIED METHODS.

#### **IV. HYDROGEOLOGY**

This section of the Closure Report Form documents groundwater conditions at the site. If groundwater was not encountered during closure activities, then answer the first question and leave the remaining questions blank. If groundwater was encountered, please specify the number of samples collected, how it was sampled (from an open pit or boring/monitoring well), and the approximate depth at which groundwater is present.

#### **V. SITE MAP**

In order for the EPD to properly review the UST Closure Report, a site map must be attached to the UST Closure Report form. The site map should include the following items: the tankpit(s) showing the tanks that were closed, tank ID's piping, dispensers, sample locations, sample ID's, sample depths, a north arrow, and nearby utilities, buildings, and roads. Tank ID's should correspond to the tank registration form (**EPA 7530**) and sample ID's should correspond to the laboratory data and chain of custody. The EPD prefers a scaled site map; however, it is not required. If a scaled map is not provided, the map should include accurate distances between all items required on the map.

**Please ensure that enough information is provided on the site map so that the facility, primarily the UST system, could be located if an EPD representative needed to visit the site.**

## VI. CONCLUSIONS

This section documents conclusions based on your assessment of the closure activities. The information provided in the UST Closure Report (completed UST Closure Report form, site map, and analytical data) must support your conclusions.

The EPD will consider your conclusion for no further action (NFA) status if one of the following criteria is met:

1. Soil samples were collected from beneath the UST system and stockpile(s), and samples were below detection limit for BTEX and PAH's and TPH-GRO and/or DRO was less than 10 mg/kg.
2. Soil samples were collected from beneath the UST system and stockpile(s), and contamination was identified in some, or all of the samples collected. Soil contamination is below applicable Soil Threshold Levels, and those samples requiring vertical delineation were properly delineated to below detection limit for BTEX and PAH's and below 10 mg/kg for TPH-GRO and/or DRO.
3. Soil samples were collected, and contamination was identified in some, or all of the samples collected. Soil contamination is below Soil Threshold Levels. However, soil samples requiring vertical delineation were not delineated because groundwater was either voluntarily collected or encountered before vertical delineation could be achieved. BTEX and PAH's in groundwater were below applicable drinking water standards (MCL's) or In-Stream Water Quality Standards.

In some rare cases, the site may not meet the conditions for no further action listed above but may still be eligible. The most common examples are sites in which contamination is the result of a previous release or sites in which groundwater contamination slightly exceeds drinking water standards or In-Stream Water Quality Standards but no receptors are in close proximity (as verified by a water resource survey). If this is the case, select the appropriate option and **provide justification for the NFA request**. If the site is not eligible for NFA status, the option requesting a CAP-Part A must be selected.

*Please note that it is at the sole discretion of the EPD if no further action (NFA) status is granted or if a CAP-Part A is requested. The EPD will review all available information and data presented in the UST Closure Report to make a decision. Under no circumstances should the above conditions be modified in order to receive NFA status.*

**If the data collected indicates that a release from the UST system has occurred, notify the EPD of the release within 24 hours by calling (404) 362-**

**2687. Georgia UST Rules define a release as any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST system into groundwater, surface water or subsurface soils. Therefore, a release has occurred if free product is identified or if laboratory data identifies BTEX and/or PAH contamination above appropriate detection limits.**

## **C. UST CLEANING & DISPOSAL**

### **I. UST CLEANING**

Petroleum residuals may accumulate in the bottom of the tank, particularly if it has been in use for a long period of time. The residuals may be hazardous because they may contain lead and volatile organic components. Any substances used to clean the tanks, if mixed with the sludge, may be classified as a hazardous waste. These sludges and hazardous wastes should only be handled by qualified personnel, trained and authorized to do this work. Any hazardous wastes must also be handled and disposed of in accordance with the Georgia Rules for Hazardous Waste Management, which can be obtained by calling (404) 656-7802. Additional guidance for tank cleaning can be found in publications available from:

National Fire Protection Association (NFPA)  
Batterymarch Park  
Quincy, Massachusetts 02269  
617/770-3500

American Petroleum Institute (API)  
1220 L Street, N.W.  
Washington, D.C. 20005  
202/682-8372.

### **II. UST DISPOSAL**

Before the tank is transported for reduction to scrap, it must be made vapor-safe (by inserting or purging) and prepared in accordance with recommended practices of API 1604. If it is transported off site prior to being reduced to scrap, it must be transported in accordance with Part 393.1 of the Federal Motor Carrier Safety Regulations. Because of the extreme danger involved in handling used petroleum tanks, EPD recommends that only qualified and experienced personnel perform this procedure. Every precaution should be taken to prevent a fire or explosion when the tank is handled and/or destroyed. When reducing the tank to scrap, it is recommended that methods

be used which reduce the possibility of fire or explosion hazard as much as possible.

### **III. RE-USE OF UNDERGROUND STORAGE TANKS**

Although the GUST Act and Rules do not disallow re-use of UST's, EPD discourages this practice. All tanks to be installed, or reinstalled, are subject to state and federal requirements for new UST systems. All used tanks must be recertified by the manufacturer, a manufacturer's representative, or Georgia registered Professional Engineer. The new tank must meet all new requirements before the tank can be re-used, in accordance with USTMP Rule 391-3-15-.05. API Publication 1604, Section 6.1, as referenced in 40 CFR Part 280, states that tanks which previously contained petroleum must not be used for storage of food or liquids intended for animal or human consumption.

# **TABLES**

## TABLE 1: Sampling Requirements

Tanks		Piping	Dispensers
Capacity (gallons)	Minimum Number of Soil Samples Required*	If piping is not located directly above the tanks, then 1 soil sample is required for every 25 feet of piping**	If the dispenser islands are not located directly above tanks, then 1 sample is required for every 25 feet of contiguous dispenser island**
<1,050	1 (2 if tank was closed in place)		
1,050-12,500	2		
>12,501	2 +1 additional sample for every 10,000 gallons greater than 12,501		

\*If groundwater is encountered (via boring, monitoring well, or open pit), then only one soil sample is required beneath each tank. Additional soil sampling is required if initial soil samples contain detectable concentrations of BTEX, PAH's, and/or TPH-GRO/DRO. Sampling must continue at depth (referred to as vertical delineation) until BTEX and PAH's are below detection limit and TPH-GRO/DRO is below 10 mg/kg.

\*\*This may not apply if only closing piping and/or dispensers above an active tank system. Refer to Piping and Dispenser Sampling section for more details.



## TABLE 2: Analytical Requirements & Detection Limits

### ANAYLTICAL METHODS

Product Stored	Target Constituents	Analytical Methods (Soil)	Analytical Methods (Groundwater)
Gasoline or Aviation Gas Only (Affidavit Required)	BTEX and TPH-GRO	BTEX: 8260B/8021B (5035) TPH-GRO (8015B)	BTEX: 8260B/8021B (5030)
Unknown Petroleum Contents, Jet Fuel A, Jet Fuel B, Mineral Spirits or Kerosene, Used Oil, Diesel Fuel Oil (#2, #4, #5, #6), Motor Oil, or Hydraulic Oil	BTEX, PAH's, and TPH-GRO & DRO	BTEX: 8260B/8021 (5035) PAH's: 8270C, 8310 TPH-GRO & DRO (8015B)	BTEX: 8260B/8021B (5030) PAH's: 8270C, 8310

### DETECTION LIMITS

Method	5035-8021B (BTEX-Soil)	5035-8260B (BTEX-Soil)	5030-8021B (BTEX- Groundwater)	5030-8260B (BTEX- Groundwater)	8270C/8310 (PAH's-Soil)	8270C (PAH's- Groundwater)	8015B (TPH-GRO/DRO- Soil)
Minimum Quantitation & Reporting Limit	0.001-0.005 mg/kg	0.005 mg/kg	1-5 µg/l	5 µg/l	0.660 mg/kg for each constituent	10 µg/l for each constituent	10 mg/kg or less

In the rare case that a tank contained a substance other than a type of petroleum, the owner must define those target constituents and detection limits that would best determine if a release from the tank impacted the soil and/or groundwater.

## TABLE 3: TABLE A SOIL THRESHOLD LEVELS

CONSTITUENT	AVERAGE OR HIGHER GROUNDWATER POLLUTION SUSCEPTIBILITY AREA <sup>b</sup> (Where public water supplies exist within 2.0 miles or non- public supplies exist within 0.5 miles)		LOWER GROUNDWATER POLLUTION SUSCEPTIBILITY AREA <sup>c</sup> (Where public water supplies exist within 1.0 mile or non-public supplies exist within 0.25 miles)	
	≤500 feet to withdrawal point	>500 feet to withdrawal point	≤500 feet to withdrawal point	>500 feet to withdrawal point
VOLATILE ORGANIC COMPOUNDS				
Benzene	0.005 mg/kg <sup>d</sup>	0.008 mg/kg	0.005 mg/kg <sup>d</sup>	0.71 mg/kg
Toluene	0.400 mg/kg	6.00 mg/kg	0.400 mg/kg	500.00 mg/kg
Ethylbenzene	0.370 mg/kg	10.00 mg/kg	0.500 mg/kg	140.00 mg/kg
Xylenes	20.00 mg/kg	700.00 mg/kg	27.00 mg/kg	700.00 mg/kg
POLYNUCLEAR AROMATIC HYDROCARBONS				
Acenaphthene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Anthracene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benz(a)anthracene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(a)pyrene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(b)fluoranthene	0.820 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(g,h,i)perylene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(k)fluoranthene	1.60 mg/kg	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Chrysene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Dibenz(a,h)anthracene	1.50 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Fluoranthene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Fluorene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Indeno(1,2,3-c,d)pyrene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>
Naphthalene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Phenanthrene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Pyrene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>

a - Based on worst-case assumptions for one-dimensional vadose zone and groundwater contaminant fate and transport models.

b - Based on an assumed distance of 0.5 feet between contaminated soils and the water table

c - Based on an assumed distance of 5.0 feet between contaminated soils and the water table.

d - Estimated Quantitation Limit. The health-based threshold level is less than the laboratory method limit of detection.

e - Not applicable. The health-based threshold level exceeds the expected soil concentration under free product conditions

## TABLE 4: TABLE B SOIL THRESHOLD LEVELS

CONSTITUENT	AVERAGE OR HIGHER GROUNDWATER POLLUTION SUSCEPTIBILITY AREA <sup>b</sup> (Where public water supplies do not exist within 2.0 miles or non- public supplies exist within 0.5 miles)		LOWER GROUNDWATER POLLUTION SUSCEPTIBILITY AREA <sup>c</sup> (Where public water supplies do not exist within 1.0 mile or non- public supplies exist within 0.25 miles)	
	≤500 feet to surface water body	>500 feet to surface water body	≤ 500 feet to surface water body	>500 feet to surface water body
VOLATILE ORGANIC COMPOUNDS				
Benzene	0.017 mg/kg	0.120 mg/kg	0.020 mg/kg	11.30 mg/kg
Toluene	115.00 mg/kg	500.00 mg/kg	135.00 mg/kg	500.00 mg/kg
Ethylbenzene	18.00 mg/kg	140.00 mg/kg	28.00 mg/kg	140.00 mg/kg
Xylenes	700.00 mg/kg	700.00 mg/kg	700.00 mg/kg	700.00 mg/kg
POLYNUCLEAR AROMATIC HYDROCARBONS				
Acenaphthene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Anthracene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benz(a)anthracene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(a)pyrene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(b)fluoranthene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(g,h,i)perylene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Benzo(k)fluoranthene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Chrysene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Dibenz(a,h)anthracene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Fluoranthene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Fluorene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Indeno(1,2,3-c,d)pyrene	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>	0.660 mg/kg <sup>d</sup>	N/A <sup>e</sup>
Naphthalene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Phenanthrene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>
Pyrene	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>	N/A <sup>e</sup>

a - Based on worst-case assumptions for one-dimensional vadose zone and groundwater contaminant fate and transport models.

b - Based on an assumed distance of 0.5 feet between contaminated soils and the water table

c - Based on an assumed distance of 5.0 feet between contaminated soils and the water table.

d - Estimated Quantitation Limit. The health-based threshold level is less than the laboratory method limit of detection.

e - Not applicable. The health-based threshold level exceeds the expected soil concentration under free product conditions

# **APPENDICES**

# APPENDIX A: WATER RESOURCE SURVEY DOCUMENTATION

This attachment serves to outline the methodology and documentation to be used to identify local water resources. Water resources that must be identified include surface water bodies that may receive groundwater flow and points of withdrawal for public and non-public water supply, such as drinking water wells. The water resources survey is used to determine the appropriate corrective action objectives, in accordance with GUST Rule 391-3-15-.09(4)(a)-(d).

Documentation of the water resources survey must include, but is not limited to, a United States Geological Survey (USGS) database search, EPD database search, communication logs (telephone or personal), and a field survey summary. It should be included as an attachment to the Closure Report. Include a figure constructed from a **USGS 7.5 minute Topographic Quadrangle Map** displaying the location(s) of all water resources within radii of concern. A legend must identify which points of withdrawal for water supply are public and non-public. The map must be to scale, have the scale displayed, include a north arrow, and be in color. Both water supply and surface water surveys should be verified by a field reconnaissance.

A public drinking water system, as defined by the Georgia Rules for Safe Drinking Water (Chapter 391-3-5, as amended), is one that provides piped water for human consumption to at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The water system survey includes the identification of all water wells (domestic, commercial, industrial and irrigation), surface water withdrawal points and springs. Identify public/non-public drinking water systems by reviewing federal, state, county, and/or city records as well as conducting a field reconnaissance. Examples of public agencies that may have public and private well information include the USGS, Georgia Geologic Survey, local health departments, and local water and sewer authorities. All adjacent property owners should be contacted via telephone, personal visit, or certified mail. A detailed field reconnaissance should be conducted to verify the presence or absence of water wells within ½ mile of the site in a high or average susceptibility area and ¼ mile within a low groundwater pollution susceptibility area.

**Region 4**  
**U.S. Environmental Protection Agency**  
**Science and Ecosystem Support Division**  
**Athens, Georgia**

**OPERATING PROCEDURE**

**Title: Management of Investigation Derived Waste**

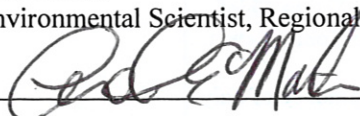
**Effective Date:** July 3, 2014

**Number:** SESDPROC-202-R3

**Authors**

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**Date:**

7/2/14

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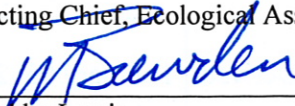
**Signature:** 

**Date:**

7/2/14

**Name:** Mike Bowden

**Title:** Acting Chief, Ecological Assessment Branch

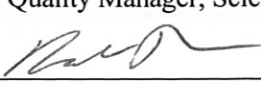
**Signature:** 

**Date:**

7/2/14

**Name:** Bobby Lewis

**Title:** Field Quality Manager, Science and Ecosystem Support Division

**Signature:** 

**Date:**

7/2/14

## Revision History

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The top row of this table shows the most recent changes to this controlled document. For previous revision history information, archived versions of this document are maintained by the SESD Document Control Coordinator on the SESD local area network (LAN).

History	Effective Date
<p>SESDPROC-202-R3, <i>Management of Investigation Derived Waste</i>, replaces SESDPROC-202-R2.</p> <p><b>General:</b> Corrected typographical, grammatical and/or editorial errors.</p> <p><b>Cover Page:</b> The Enforcement and Investigations Branch Chief was changed from Archie Lee to Acting Chief John Deatruck. The Ecological Assessment Branch Chief was changed from Bill Cosgrove to Acting Chief Mike Bowden. The FQM was changed from Liza Montalvo to Bobby Lewis.</p> <p><b>Revision History:</b> Changes were made to reflect the current practice of only including the most recent changes in the revision history.</p>	July 3, 2014
SESDPROC-202-R2, <i>Management of Investigation Derived Waste</i> , replaces SESDPROC-202-R1.	October 15, 2010
SESDPROC-202-R1, <i>Management of Investigation Derived Waste</i> , replaces SESDPROC-202-R0.	November 1, 2007
SESDPROC-202-R0, Management of Investigation Derived Waste, Original Issue	February 05, 2007

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# Contents

## **1 General Information**

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### **1.1 Purpose**

This document describes general and specific procedures and considerations to be used and observed when managing investigation derived waste (IDW) generated during the course of hazardous waste site investigations.

### **1.2 Scope/Application**

The procedures and management options for the different categories of IDW described in this document are to be used by SESD field personnel to manage IDW generated during site investigations. On the occasion that SESD field personnel determine that any of the procedures described in this section are inappropriate, inadequate or impractical and that another procedure must be used to manage IDW generated at a particular site, the variant procedure will be documented in the field logbook, along with a description of the circumstances requiring its use. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

### **1.3 Documentation/Verification**

This procedure was prepared by persons deemed technically competent by SESD management, based on their knowledge, skills and abilities and have been tested in practice and reviewed in print by a subject matter expert. The official copy of this procedure resides on the SESD Local Area Network (LAN). The Document Control Coordinator (DCC) is responsible for ensuring the most recent version of the procedure is placed on the LAN and for maintaining records of review conducted prior to its issuance.

### **1.4 References**

SESD Operating Procedure for Field Equipment Cleaning and Decontamination, SESDPROC-205, Most Recent Version

United States Environmental Protection Agency (US EPA). 2001. Environmental Investigations Standard Operating Procedures and Quality Assurance Manual. Region 4 Science and Ecosystem Support Division (SESD), Athens, GA

US EPA. Safety, Health and Environmental Management Program Procedures and Policy Manual. Region 4 SESD, Athens, GA, Most Recent Version

## **1.5 General Precautions**

### ***1.5.1 Safety***

Proper safety precautions must be observed when managing IDW. Refer to the SESD Safety, Health and Environmental Management Program (SHEMP) Procedures and Policy Manual and any pertinent site-specific Health and Safety Plans (HASP) for guidelines on safety precautions. These guidelines, however, should only be used to complement the judgment of an experienced professional. Address chemicals that pose specific toxicity or safety concerns and follow any other relevant requirements, as appropriate.

### ***1.5.2 Procedural Precautions***

The following precautions should be considered when managing IDW:

- Due to time limitations and restrictions posed by RCRA regulations on storage of hazardous waste, accumulation start dates should be identified on all drums, buckets or other containers used to hold IDW so that it can be managed in a timely manner.
- During generation of both non-hazardous and hazardous IDW, keep hazardous IDW segregated from non-hazardous IDW to minimize the volume of hazardous IDW that must be properly managed.

## 2 Types of Investigation Derived Waste

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Materials which may become IDW include, but are not limited to:

- Personal protective equipment (PPE) - This includes disposable coveralls, gloves, booties, respirator canisters, splash suits, etc.
- Disposable equipment and items - This includes plastic ground and equipment covers, aluminum foil, conduit pipe, composite liquid waste samplers (COLIWASAs), Teflon® tubing, broken or unused sample containers, sample container boxes, tape, etc.
- Soil cuttings from drilling or hand augering.
- Drilling mud or water used for mud or water rotary drilling.
- Groundwater obtained through well development or well purging.
- Cleaning fluids such as spent solvents and wash water.
- Packing and shipping materials.

Table 1, found at the end of this procedure, lists the types of IDW commonly generated during field investigations and the current disposal practices for these materials.

For the purpose of determining the ultimate disposition of IDW, it is typically distinguished as being either hazardous or non-hazardous. This determination is based on either clear regulatory guidance or by subsequent analysis. This determination and subsequent management is the responsibility of the program site manager.

### **3 Management of Non-Hazardous IDW**

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Disposal of non-hazardous IDW should be addressed in the study plan or QAPP for the investigation. To reduce the volume of any IDW transported back to the Field Equipment Center (FEC), it may be necessary to compact the waste into a reusable container, such as a 55-gallon drum.

If the waste is from an active facility, permission should be sought from the operator of the facility to place the non-hazardous PPE, disposable equipment, and/or paper/cardboard into the facility's dumpsters. If necessary, these materials may be placed into municipal dumpsters, with the permission of the owner. These materials may also be taken to a nearby permitted landfill. On larger studies, waste hauling services may be obtained and a dumpster located at the study site.

Disposal of non-hazardous IDW such as drill cuttings, drilling mud, purge or development water, decontamination wash water, etc., should be specified in the approved study plan or QAPP. It is recommended that these materials be placed into a unit with an environmental permit, such as a landfill or sanitary sewer. These materials must not be placed into dumpsters. If the facility at which the study is being conducted is active, permission should be sought to place these types of IDW into the facility's treatment system. It may be feasible to spread drill cuttings around the borehole, or, if the well is temporary, to place the cuttings back into the borehole. Non-hazardous monitoring well purge or development water may also be poured onto the ground down gradient of the monitoring well when site conditions permit. Purge water from private potable wells which are in service may be discharged directly onto the ground surface.

The minimum requirements for this subsection are:

- Non-hazardous liquid and soil/sediment IDW may be placed on the ground or returned to the source if doing so does not endanger human health or the environment or violate federal or state regulations. Under no circumstances, however, should monitoring well purge water be placed back into the well from which it came.
- Soap and water decontamination fluids and rinsates of such cannot be placed in any water bodies and must be collected and returned to the FEC for disposition.
- The collection, handling and proposed disposal method must be specified in the approved study plan or QAPP.

## **4 Management of Hazardous IDW**

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Disposal of hazardous or suspected hazardous IDW must be specified in the approved study plan or QAPP for the study or investigation. Hazardous IDW must be disposed as specified in USEPA regulations. If appropriate, these wastes may be placed back in an active facility waste treatment system. These wastes may also be disposed in the source area from which they originated if doing so does not endanger human health or the environment.

If on-site disposal is not feasible, and if the wastes are suspected to be hazardous, appropriate tests must be conducted to make that determination. If they are determined to be hazardous wastes, they must be properly contained and labeled. They may be stored on the site for a maximum of 90 days before they must be manifested and shipped to a permitted treatment or disposal facility. Generation of hazardous IDW must be anticipated, if possible, to allow arrangements for proper containerization, labeling, transportation and disposal/treatment in accordance with USEPA regulations.

The generation of hazardous IDW should be minimized to conserve Division resources. Most routine studies should not produce any hazardous IDW, with the possible exception of spent solvents and, possibly, purged groundwater. The use of solvents during field cleaning of equipment should be minimized by using solvent-free cleaning procedures for routine cleaning and decontamination (see SESD Operating Procedure for Field Equipment Cleaning and Decontamination, SESDPROC-205). If solvents are needed, the volume should be minimized by using only the amount necessary and by capturing the residual solvent separately from the aqueous decontamination fluids (detergent/wash water mixes and water rinses).

At a minimum, the requirements of the management of hazardous IDW are as follows:

- Spent solvents must be left on-site with the permission of site operator and proper disposal arranged.
- All hazardous IDW must be containerized. Proper handling and disposal should be arranged prior to commencement of field activities.

**Table 1: Disposal of IDW**

TYPE	HAZARDOUS	NON - HAZARDOUS
PPE-Disposable	Containerize in plastic 5-gallon bucket with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise return to FEC for proper disposal.	Place waste in trash bag. Place in dumpster with permission of site operator, otherwise return to FEC for disposal in dumpster.
PPE-Reusable	Decontaminate as per SESD Operating Procedure for Field Equipment Cleaning and Decontamination, SESDPROC-205, if possible. If the equipment cannot be decontaminated, containerize in plastic 5-gallon bucket with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise return to FEC for proper disposal.	Decontaminate as per SESDPROC-205, and return to FEC.
Spent Solvents	Containerize in original containers. Clearly identify contents. Leave on-site with permission of site operator and arrange for proper disposal.	N/A
Soil Cuttings	Containerize in DOT-approved container with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal.	Containerize in a 55-gallon steel drum with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal. **
Groundwater	Containerize in DOT-approved container with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal.	Containerize in an appropriate container with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal. **
Decontamination Water	Containerize in DOT-approved container with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal.	Containerize in an appropriate container with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal. Decontamination water may also be disposed in a sanitary sewer system, with permission from the wastewater treatment plant representative, and if doing so does not endanger human health or the environment, or violate federal or state regulations.
Disposable Equipment	Containerize in DOT-approved container or 5-gallon plastic bucket with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal.	Containerize in an appropriate container with tight-fitting lid. Identify and leave on-site with permission of site operator, otherwise arrange with program site manager for testing and disposal. If unfeasible, return to FEC for disposal in dumpster.
Trash	N/A	Place waste in trash bag. Place in dumpster with permission of site operator, otherwise return to FEC for disposal in dumpster.

**\*\* These materials may be placed on the ground if doing so does not endanger human health or the environment or violate federal or state regulations.**